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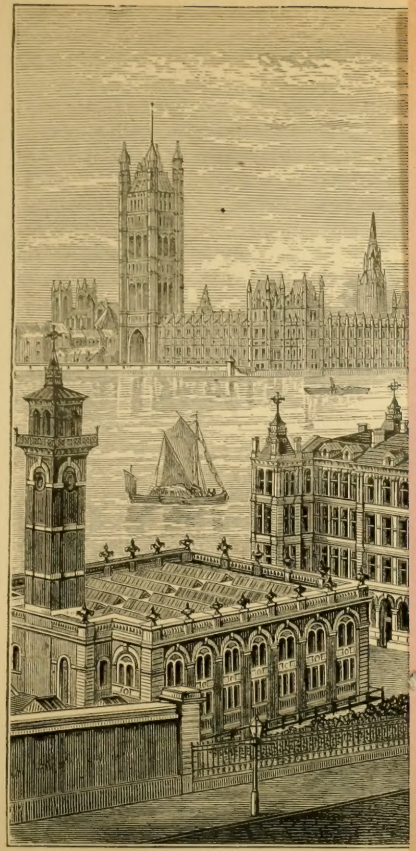


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New Series.

EDITED BY

DR. ROBERT CORY AND MR. FRANCIS MASON.



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STATISTICAL REPORT

ON

CASES OF RHEUMATIC FEVER

TREATED

DURING THE YEARS 1872 TO 1876, INCLUSIVE.

By THOMAS B. PEACOCK, M.D., F.R.C.P.,
HON. CONSULTING PHYSICIAN TO THE HOSPITAL.

PART I.

In 1868 I published in the 'Transactions of the Clinical Society' a report of 146 cases of rheumatic fever treated by myself during a series of years at the Royal Free Hospital and at old St. Thomas's Hospital, London Bridge. In this report I directed my attention more especially to the proportion of cases in which cardiac complication occurred, and to the circumstances which influence the occurrence of the complication. In 1872 I contributed a similar analysis of 87 other cases treated at the temporary hospital, Surrey Gardens, and at the new hospital shortly after it was opened. I now propose to give the results of a similar investigation of 161 cases treated at the new hospital between March, 1872, and the end of 1876, within a few months of the time at which my active service at the hospital ceased; and I shall finally give a brief summary of the results deduced in the three reports, so as to embrace a total of 394 cases, or nearly all those which I have treated in public practice.

1. The circumstances under which the disease occurred were

very similar to those which obtained in the cases analysed in the two previous reports. Of the whole number of persons 42·8 per cent. were twenty years of age and under, 49·6 per cent. were between twenty-one and forty years of age, and only 7·4 per cent. exceeded forty years of age, the oldest person being only fifty-five years old. Of the 233 cases included in the two previous reports, 112, or 48·06 per cent., were twenty years of age and under, 109, or 46·78 per cent., were between twenty-one and forty, and 12, or 5·15 per cent., between forty and fifty-three. The number of females was, however, unlike what was found in the two first series, in the present 161 cases, rather in excess of the males, the proportions of the sexes being —males 75, or 46·5 per cent., and females 86, or 53·4 per cent., respectively. Of the previous 233 cases the males were 130, the females 103, or 55·79 and 44·2 per cent. respectively.

2. In the cases now collected the notes are somewhat fuller as regards the previous history of the patients; of the whole number of 141 cases, deducting 20, in which the information is incomplete, in 57, or 40·04 per cent., the attack for which the patient was admitted was the first, and in 84, or 59·6 per cent., then had one or more previous seizures. In the last report it was inferred that in 40 out of the 87 cases, or 45·9 per cent., there had been previous attacks. The period which elapsed between the first and subsequent attacks was often very prolonged. In the cases of second attack it ranged from six weeks, six months, and twelve months, to twenty-four years; and in cases of third attack from two to nineteen years.

3. In only 60 of the cases was it possible to obtain definite information as to the cause to which the attack was due, but in nearly all these the attack was ascribed to cold taken in various ways.

4. The information as to hereditary predisposition is defective except as refers to a small number of cases. Of 25 cases, in only 18 was any history obtained of the occurrence of rheumatism in near relations of the patients, while in 7 the occurrence of rheumatism in other members of the family was denied.

5. The number of cases of the present series in which there was recent uncombined cardiac disease was 46, or 28·5 per cent., or 1 case in 3·5, and the number of cases of recent cardiac

disease, both alone and in combination with old disease of the heart, was 53, or 32·9 per cent., or 1 case in 3·03. This is a larger proportion of cardiac complication than obtained in the second of the former series of cases, though less than that which was deduced from the first series. Thus, of the 87 cases of the second series 15, or 17·34 per cent., or 1 case in 5·8, had recent uncombined cardiac disease, and 23, or 26·4 per cent., or 1 case in 3·7, had recent disease and recent and old disease combined ; while in the first series of 146 cases 53, or 36·3 per cent., or 1 case in 2·7, had recent disease alone, and 62, or 42·4 per cent., had recent disease alone and combined, or 1 case in 2·2.

6. In the former reports I showed that the proportion of cases in which recent cardiac complication occurred varied considerably in the different years embraced in the reports. The cases now reported upon show similar variations. Thus, in 1872, of 31 cases under treatment 13, or 41·9 per cent., had recent uncombined cardiac disease, and 17, or 54·8 per cent., had recent and recent and old disease combined. In 1873 of 31 cases 7, or 22·9 per cent., had recent uncombined disease. In 1874 of 39 cases 12 had recent uncombined disease, or 30 per cent. In 1875 of 30 cases 10, or 33·3 per cent., had recent cardiac complication, and 13 had recent and recent and old disease combined, or 40 per cent. ; while in 1876 of 30 cases only 4, or 13·3 per cent., had recent uncombined cardiac disease, and 5, or 16·6 per cent., recent and recent and old disease combined—a range of from 16·6 to 40 per cent. in the five years. These variations occurred, as in the former series of cases, entirely independently of any difference in the course of treatment pursued in the different years. Indeed, in by far the majority of the cases the signs of cardiac disease were present or decidedly marked at the time of the patient's admission into the hospital.

7. As usually obtains, the proportion of recent cardiac disease was greater at the earlier periods of life than at more advanced ages. Thus, in persons of twenty years of age and under it was 34·78 per cent., between twenty and forty it was 31·5 per cent., and in those above forty only 25 per cent.

8. In males the proportion was somewhat larger than in females, or 33·3 per cent. and 32·5 per cent. respectively.

9. Of the 161 cases three terminated fatally; in each of these cases there being old disease of the heart, with kidney disease, and in one case bronchitis. All the patients had had attacks of rheumatic fever previous to that for which they were admitted.

PART II.

Number of cases treated each year, with the proportion of cardiac complication.

1872. Cases, 31.

Were entirely free from symptoms or signs of cardiac disease	4
Had recent cardiac disease	13=41·9 p. c.
Had recent cardiac disease superinduced upon old	4=17=54·8 p. c.
Had old disease only	5
Had doubtful signs	5

1873. Cases, 31.

Were entirely free from cardiac signs	13
Had recent disease	7=22·9 p. c.
Had old disease	4
Had doubtful signs	7

1874. Cases, 39.

Were free from cardiac signs	11
Had recent disease	12=30· p. c.
Had old disease	4
Had doubtful signs	12

1875. Cases, 30.

Were free from signs of disease	10
Had recent disease	10=33·3 p. c
Had old disease	7
Had recent and old	2=12=40· p. c.
Had doubtful signs	1

1876. Cases, 30.

Were free from cardiac disease . .	15
Had recent disease . . .	4=13·2 p. c.
Had old disease	5
Had recent and old . . .	1=5=16·6 p. c.
Had doubtful signs . . .	5

Summary.

Total cases, 161.

Were entirely free from cardiac complication	53=32·9 p. c.
Had recent cardiac disease . . .	46=28·5 p. c.
Had recent and old cardiac disease . .	7= 4·3 p. c.
Had old disease only . . .	25=15·5 p. c.
Had doubtful signs	30=18·6 p. c.
	161
Had recent and recent and old disease combined	53=32·9 p. c.

Summary of age and sex, and proportion of recent cardiac complication.

	Males.	Females.	Total.
20 years of age and under	31 .	38 .	69=42·8 p. c.
21 to 40 inclusive . .	37 .	43 .	80=49·6 p. c.
41 to 55 inclusive . .	7 .	5 .	12= 7·4 p. c.
	75	86	161
	=46·5 p. c.	=53·4 p. c.	

The youngest and oldest of the males were five and fifty-five years of age.

The youngest and oldest of the females were ten and forty-nine years of age.

Of 69 persons of twenty years of age and under had some form of recent cardiac complication, 24, or 34·78 per cent.

Of 92 persons above twenty years of age had recent cardiac disease, 29, or 31·5 per cent., and of 12 persons, above forty years of age, had recent disease, 3, or 25 per cent.

Of 75 males had recent cardiac complication, 25, or 33·3 per cent.

Of 86 females had recent cardiac disease, 28, or 32·5 per cent.

Of the whole 161 cases only 53, or 32·9 per cent., or 1 case in 3·03, were entirely free from any signs of cardiac disease; while 46 had decided uncombined recent disease, and 7 had recent and old disease combined, and 25 had old disease only, making a total of 78 with some form of cardiac complication, recent or old, or 48·4 per cent. In 30 cases also there existed doubtful signs, so that 108, or 67·08 per cent., had either decided or suspicious signs of cardiac complication, and only 53, or 32·9 per cent., were entirely free from any suspicion of cardiac disease.

Summary of cases of first and second or subsequent attacks in each year.

	1872.	1873.	1874.	1875.	1876.	Total.
First attack . . .	9	10	17	9	12	57
Second attack . . .	14	10	12	8	10	54
Third attack . . .	3	2	4	4	2	15
Fourth attack . . .	1	1	3	3	2	10
Fifth attack . . .	...	...	1	...	1	2
Fifth or sixth attack . .	...	...	...	1	...	1
Sixth attack . . .	...	1	...	...	...	1
Eighth attack . . .	...	...	...	1	...	1
Not fully ascertained . .	4	7	2	4	3	20
	31	31	39	30	30	161

In 57 cases, or 35·4 per cent., the attack was the first, and in 104, or 64·2 per cent., there had been one or more previous attacks.

Of 57 cases of first attack 18, or 31·57 per cent., had recent cardiac disease or recent and old combined.

Of 84 cases of second or subsequent attack 33, or 39·2 per cent., had recent cardiac complication, or recent and old combined.

Periods at which former attacks occurred in cases in which there had been one or more seizures previous to that for which the patient was admitted.

Second attack, the first occurred six weeks before.
" " " six months before.
" " " a year before.
" " " a year before.
" " " a year before.
" " " a year before.
" " " a year before.
" " " a year before.
" " " thirteen months before.
" " " two years before.
" " " two years before.
" " " two years before.
" " " two years before.
" " " two years and a half before.
" " " two years and a half before.
" " " three years before.
" " " three years before.
" " " three years before.
" " " three years before.
" " " three years and a half before.
" " " four years before.
" " " four years before.
" " " four years before.
" " " four years before.
" " " five years before.
" " " five years before.
" " " five years before.
" " " five years before.
" " " six years before.
" " " six years before.
" " " seven years before.
" " " seven years before.
" " " seven years before.
" " " eight years before.
" " " eight or nine years before.
" " " nine years before.

Second attack, the first occurred eight or ten years before.
" " " eleven years before.
" " " eleven years before.
" " " eleven years before.
" " " fourteen years before.
" " " fifteen years before.
" " " seventeen years before.
" " " eighteen years before.
" " " twenty years before.
" " " twenty-four years before.

Third attack, the first occurred two years before, the second a few weeks before.
" " " four years before, the second one year before.
" " " four years before.
" " " five years before.
" " " five years before.
" " " six years before, the second fourteen months before.
" " " six years before, the second two years before.
" " " six years before, the second three years before.
" " " seven years before, the second five years before.
" " " seven years before.
" " " nine years before, the second four years before.
" " " Nine years before.
" " " Nine or ten years before.
" " " Ten years before, the second seven years before.
" " " nineteen years before, the second twelve years before.

Fourth attack, the first occurred four years before, the second two years before, the third one and a half year before.
" " " five years before, the second four years before, the third two years before.

Fourth attack, the first occurred five years before, the second twenty-eight years before, the third two years before.

Fifth attack, the first occurred five years before.

„ „ „ nine years before.

Fifth or sixth attack, the first occurred five years before.

Sixth attack, the first occurred five years before, the last six months before.

Eighth attack, the first occurred thirteen years before.

In one case there had been several attacks in twenty years.

Period which elapsed between the first and next subsequent attacks in cases in which there had been one or more seizures before that for which the patient was admitted.

In cases of second attack:

Six weeks, 1 case.
Six months, 1 case.
A year, 5 cases.
Thirteen months, 1 case.
Two years, 5 cases.
Two years and a half, 2 cases.
Three years, 4 cases.
Three years and a half, 1 case.
Four years, 4 cases.
Five years, 4 cases.
Six years, 2 cases.
Seven years, 3 cases.
Eight years, 2 cases.
Eight or nine years, 1 case.
Nine years, 1 case.
Eight or ten years, 1 case.
Eleven years, 3 cases.
Fourteen years, 1 case.
Fifteen years, 1 case.
Seventeen years, 1 case.
Eighteen years, 1 case.
Twenty years, 1 case.
Twenty-four years, 1 case.

In one case the attack was a relapse rather than a fresh attack.

In cases of third attack:

Two years, 1 case.
Four years, 2 cases.
Five years, 2 cases.
Six years, 3 cases.
Seven years, 2 cases.
Nine years, 2 cases.
Ten years, 1 case.
Nineteen years, 2 cases.

Assigned causes.

Ascribed to having got heated in walking, five days before commencement of symptoms.

Got wet through in cold and snowy weather, and rheumatic symptoms appeared in five days.

Not aware of any cause.

Going to work too soon after confinement.

No cause known.

No cause known.

Getting feet damp, and symptoms appeared two or three days after.

No cause known.

Suffering from cold and cough all the winter to January 3rd, but no precise cause.

No cause known.

No cause known.

Got wet three days before commencement of the symptoms.

Took cold, in attending a funeral, three days before commencement, but suffering from cold previously.

No cause known.

No cause known.

To getting feet and clothes wet, three weeks before.

Getting repeatedly wet through.

Kneeling on cold stones.

Cold from going from hot laundry into the cold, and the symptoms appeared a week after.

Got wet, and continued to go about all day.

Took cold, a day or two before.

Took cold from wearing damp clothes, and symptoms appeared in about a week.

No known cause.

No obvious cause.

Lying on the grass, and symptoms appeared two days after.

Frequently wet through, on board a coasting vessel, during very bad weather.

Frequently exposed to wet in going to work.

Damp clothes put on, during her confinement.

Ascribed to cold, and symptoms appeared two or three days after.

To getting feet wet from walking in thin boots.

Ascribed to having got chilled a month before.

Took cold, but no time named.

No known cause.

Exposure to cold.

Exposed to cold draught, got heated and perspired, and the rheumatic symptoms appeared the day after.

Living in a very damp house for eight months.

No obvious cause.

No known cause.

No obvious cause.

From putting on a damp shirt; the next day had symptoms of catarrh, and the day after the rheumatism commenced.

No obvious cause.

Got feet wet.

Got heated and went out to work in the cold some weeks before.

Working at a locomotive in a shed.

Working in hot kitchen; symptoms appeared the day after.

No known cause.

Getting heated in a railway-signal box and then going out.

No known cause.

Washing in a laundry.

Got wet through, and did not change clothes.

Took cold, after getting heated from working in the sun.

Came on after exposure to wet.

Ascribed to a fall.

Ascribed to having suffered from Malta fever.

Took cold two weeks before.

Commenced with symptoms of catarrh, after which the rheumatic symptoms supervened.

Four or five cases commenced with pain in left side of chest.

In 60 cases causes were assigned for the attacks.

Hereditary influence.

No history of any other case of rheumatism in the family.

Father and mother both subject to rheumatism.

A sister had had rheumatism occasionally.

No history of rheumatism in the family.

A sister died of disease of the heart after rheumatism.

Mother had had rheumatism occasionally, and father consumptive.

No apparent predisposition.

No history of rheumatism in the family.

Both father and mother had had rheumatism.

Father had had rheumatic pains, and severe rheumatism occasionally.

Father had had rheumatism occasionally.

No history of rheumatism in the family.

No history of rheumatism in the family.

No history of rheumatism in the family.

A sister also suffering from rheumatism.

No history of rheumatism in the family.

Mother suffered from rheumatism.

Has had pleurisy, but not rheumatism.

In only 18 are there special notes as to the occurrence of the disease in any other members of the family, and in 7 of these no history of rheumatism or cardiac affection was obtained.

Brief abstract of cases of recent disease only.

1. T. C—, æt. 21, admitted April 12th, 1872. Second attack; the first occurred three years before. Ascribed to getting wet through. The symptoms appeared five days after.

Seventeen days ill on admission. Slight rheumatism, with peri- and endocarditis commencing at time of admission. Discharged thirty days after. Presystolic murmur still heard.

2. M. H—, æt. 27, admitted March 16th, 1872. Nursing for five weeks. Attack probably the first. Ill three days on admission. Peri- and endocarditis present on admission. All signs gone at discharge thirty-three days after.

3. E. C—, æt. 16, admitted June 3rd, 1872. No cause assigned. Ill six days. Peri- and endocarditis. Murmur at apex audible at discharge fifty days after.

4. C. B—, æt. 29, admitted June 3rd, 1872. Second attack. Ill three weeks. Pericarditis came on after admission. Bronchitis and bed-sores. Discharged cured forty-nine days after.

5. E. P—, æt. 25, admitted July 11th, 1872. No assigned cause. Third attack; first occurred seven years before, second five years before. Ill three weeks. Peri- and endocarditis marked on admission. Discharged forty days after. Area of dulness extended and murmur at apex.

6. A. W—, æt. 37, admitted October 30th, 1872. Probably first attack. Ill three days. Peri- and endocarditis and diphtheria. Discharged forty-seven days after. Slight whiff in course of pulmonary artery.

7. H. S—, æt. 18, admitted November 7th, 1872. Second attack; first occurred when four years old. Ill two days. Pericarditis present on admission. Discharged cured ninety-three days after.

8. M. W—, æt. 19, admitted November 25th, 1872. Ill two days on admission. Pericarditis, pleuritis, and pneumonia. Discharged cured in eighty days.

9. W. T—, æt. 24, admitted December 4th, 1872. First attack. Ascribed to getting repeatedly wet through. Ill five days on admission. Peri- and endocarditis. Discharged cured in eighty-six days. Capillary bronchitis and pleurisy of left side. Murmur remaining at apex; propagated to left axilla.

10. C. D—, æt. 12, admitted October 23rd, 1872. Second attack. Took cold a day or two before commencement of symptoms. First attack occurred two years and a half before. Ill five days on admission. Pericarditis and pleuro-pneumonia; signs marked on admission. Gone at discharge, sixty-nine days after.

11. L. K—, æt. 20, admitted December 30th, 1872. Slight rheumatism. Ill seven days. Pericarditis; signs marked on admission. Discharged cured in twenty-five days.

12. M. A. R—, æt. 16, admitted October 16th, 1872. First attack. Took cold from wearing damp clothes, and symptoms appeared a week after. Ill two or three weeks. Peri- and endocarditis marked on admission. Discharged 106 days after. Murmur still heard at apex and towards left axilla.

13. T. E—, æt. 20, admitted June 5th, 1872. Second attack; first three years before. No assigned cause. Suffering from rheumatic pains for six months. Pericarditis coming on admission. Area of dulness and sounds remaining at discharge, thirty-six days after.

14. H. R—, æt. 27, admitted May 19th, 1873. First attack. No obvious cause. Ill eight days. Pericarditis, active delirium, and diarrhœa. Discharged fifty-nine days after. Some roughness remaining at apex.

15. G. W—, æt. 44, admitted July 30th, 1873. Took cold from lying on grass in Battersea Park, July 27th; symptoms appeared two days after. Ill six days. Albuminuria, peri- and endocarditis present on admission. Discharged cured in ninety-four days.

16. A. F—, æt. 10, admitted October 10th, 1872. Probably first attack. Ill four days. Pericarditis. Cured in eighty-eight days.

17. E. P—, æt. 24, admitted March 6th, 1873. Second attack; ascribed to cold. First occurred five years before. Ill one week. Albuminuria, peri- and endocarditis present on admission. Discharged eighty-two days after. Area of dulness and heart sound prolapsed.

18. K. M—, æt. 21, admitted June 18th, 1873. First attack. Ill five days. No assigned cause. Slight rheumatism. Pericarditis present on admission. Cured in sixty-seven days.

19. J. S—, æt. 26, admitted November 20th, 1873. Three days ill. Pericarditis and capillary bronchitis. Cured in fifty-four days. Area of dulness increased.

20. F. T—, æt. 21, admitted September 18th, 1873. Ill five weeks, severe three. Previous attack four years before, and rheumatic pains after. Pericarditis. Cured twenty-two days after.

21. H. B—, æt. 17, admitted January 16th, 1876. Second attack. First three years before. Ill seven days. Pericarditis. Cured in fifty-six days. No murmur.

22. W. J—, æt. 14, admitted April 23rd, 1874. First attack. Ill four days. Endo- and pericarditis and pleuro-pneumonia present on admission. May 4th.—Signs still present. July 23rd.—Recovered in eighty-one days.

23. G. C—, æt. 5, admitted February 12th, 1874. First attack. Ill one week. Slight rheumatism. Pericarditis present on admission. Cured in sixty-seven days.

24. W. W—, æt. 13, admitted February 25th, 1874. First attack. Ill eight days; no assigned cause. Pericarditis and pleurisy of left side present on admission. Signs nearly gone in fifty-two days.

25. H. D—, æt. 37, admitted March 14th, 1874. Fourth attack. Slight rheumatism. Ill three days. Endocarditis of mitral. Signs entirely gone in forty-seven days.

26. R. W. N—, æt. 40, admitted September 2nd, 1874. Third attack; first six years, second five years before. Ill three weeks. Pericarditis and delirium. Signs entirely gone at discharge in thirty-one days.

27. C. S—, æt. 17, admitted August 18th, 1874. First attack. No assigned cause. Ill four days. Pericarditis present on admission. Cured in thirty-one days.

28. M. A. J—, æt. 19, admitted February 6th, 1874. Second attack; first occurred thirteen months before. Ill five days. Slight rheumatism, pericarditis, and bronchitis. Fifty-one days.

29. E. B—, æt. 24, admitted February 7th, 1874. Fourth attack; first occurred five years before, second three years before, and third six weeks before. Very slight rheumatism. Pericarditis. Signs marked on admission. Discharged in forty-eight days; signs still present.

30. A. G—, æt. 18, admitted April 16th, 1874. Second attack; first occurred two years before. Ill three weeks. Pericarditis. Cured in twenty-seven days.

31. M. B—, æt. 16, admitted August 31st, 1874. Second attack; first occurred five years before. Ill four days; ascribed to working in a damp kitchen. Pericarditis and pleuro-pneumonia of left side. Recovered.

32. K. I—, æt. 39, admitted December 18th, 1874. First

attack. Took cold, and symptoms appeared the day after. Ill four days. Pericarditic signs on admission. Cured in eighteen days.

33. E. D—, æt. 19, admitted December 21st, 1874. First attack; ascribed to getting wet in sweeping snow off steps, and symptoms appeared the day after. Pericarditis. Cured entirely on discharge in thirty-eight days.

34. A. K—, æt. 30, admitted January 28th, 1875. Second attack; first occurred two months before. Ill one week. Pericarditis and endocarditis. Cured in fifty-eight days.

35. T. C—, æt. 21, admitted March 10th, 1875. Probably first attack; ascribed to getting wet through. Ill one week. Pericarditis. Cured in forty-one days.

36. T. H. S—, æt. 43, admitted May 17th, 1875. Third attack; first attack fourteen years before. Ill two weeks. Pericarditis and double pleuro-pneumonia. Eighty-four days.

37. S. J. S—, æt. 22, admitted October 9th, 1875. First attack. Ill one week; slight rheumatism. Pericarditis came on four days after admission. Cured in twelve days.

38. M. B—, æt. 28, admitted January 21st, 1875. Eighth attack; first occurred thirteen years before. Ill seven days. Slight pericarditis. Cured in twenty-six days.

39. C. W—, æt. 23, admitted February 4th, 1875. First attack; ascribed to a fall, but afterwards got her feet wet. Ill seven days. Peri- and endocarditis. Cured in thirty-eight days; suckling.

40. M. G—, æt. 26, admitted February 20th, 1875. First attack. Ill seven days, but ailing before three months; suckling. Pericarditis. Cured in thirty-eight days.

41. M. A. P—, æt. 18, admitted July 5th, 1875. Third attack; first three years before, second one year before. Ill six days. Peri- and endocarditis. Cured in seventy-one days.

42. E. F—, æt. 16, admitted July 24th, 1875. First attack. Ill five days. Endocarditic signs present on admission. Cured in forty-eight days.

43. S. J—, æt. 31, admitted August 1st, 1876. Second attack; first six years before. Ill four days. Pericarditis. Cured in fifty-three days.

44. J. G—, æt. 26, admitted December 5th, 1876. Slight albuminuria and pericarditis. Cured in fifty-three days.

45. M. W—, æt. 19, admitted March 2nd, 1876. First attack. Ill three weeks; slight rheumatism. Endocarditis. Signs nearly gone at discharge in thirty-three days.

46. S. G—, æt. 24, admitted May 18th, 1876. First attack. Ill four weeks. Pericarditis. Cured in thirty-five days.

Brief abstracts of cases of combined old and recent cardiac disease.

1. E. M—, æt. 47, admitted May 20th, 1872. The attack ascribed to getting her feet wet. Second attack; first occurred two years and a half before. Ill two weeks at the time of admission. Pleuro-pneumonia of left side, with pericarditis and old mitral stenosis. Discharged June 18th; slight systolic murmur still audible.

2. K. L—, æt. 25. No known cause for the attack. Admitted June 8th, 1872. She had had several previous attacks since she was nine years old. Ill one week on admission. Peri- and endocarditis and old mitral stenosis. Discharged relieved July 12th.

3. J. E—, æt. 23, admitted June 10th, 1872. The fourth attack; the first occurred three years before, the third six months before. Ill five days on admission. Pericarditis and old obstruction, and regurgitant disease of the aortic valves. Discharged cured July 22nd.

4. W. E. W—, æt. 18, admitted September 8th, 1875. The fourth attack; the first occurred nine years before, the second eight years before, and the third a year before. Pericarditis and old heart disease. Discharged cured and relieved December 14th.

5. G. M. N—, æt. 14, admitted November 15th, 1875. Third attack. Pericarditis and old heart disease. Discharged December 14th cured.

6. K. K—, æt. 14, admitted Jannary 20th, 1876. Ill fourteen days on admission. Third attack; first seven years before. Slight pericarditis and old heart disease. Discharged cured March 21st.

7. A. D—, æt. 18, admitted August 21st, 1873. Mitral stenosis and pericarditis. Discharged cured October 7th.

Abstract of fatal cases.

1. J. R—, æt. 29, admitted March 16th, 1874, with a third attack, the first having occurred eighteen years before, and the second four years before. The symptoms and signs of cardiac disease were present on admission. Died April 3rd, 1874. The legs and genitals were œdematous. The pleuræ contained bright yellow-coloured fluid, with flakes of lymph. The lungs were congested, and contained hæmorrhagic blocks. There was some fluid in the pericardium. The heart weighed nineteen ounces. The left auriculo-ventricular aperture was much constricted, and the valves thickened. The liver was indurated, and there was marked hepatic venous congestion. The kidneys were somewhat large and granular.

2. S. M—, æt. 13. Second attack; the first occurred six months before. The attack commenced three days after she had got wet. Recovered and was discharged, but was readmitted shortly after on September 25th, 1875, and died the same day. The body was very cyanotic. The pericardium contained much yellow-coloured serum. The mitral valve was much thickened and shortened, so as to be very incompetent. The aortic valves were also incompetent, and two of the segments were blended together. The heart weighed fourteen ounces and a half. The liver and spleen were congested, the kidneys hard and congested.

3. W. P—, æt. 41, admitted into Charity Ward, July 21st, 1875. He was reported to have had four previous seizures, the first of which occurred nineteen years before, the last at Christmas, 1874. He had been intemperate in his habits, taking four or five pints of beer daily and a quartern of gin. He ascribed his existing attack to having got heated by working in the sun and then being chilled. He had been ill six days, suffering from pain in all parts of the trunk and limbs, and latterly especially in the knees and hips. After his admission the wrists and shoulders became affected, and the joints were swollen. He was very much prostrated, perspired profusely, was delirious, and had much muco-purulent expectoration. On the evening of his admission the temperature was 103·4°. There was a copious miliary eruption on the skin; the urine

contained about one tenth of albumen. The præcordial dulness was extended very much beyond the proper limits, but from the loud bronchitic rhonchus the heart could not be properly auscultated.

The following morning he was somewhat better. The temperature had fallen to 102·8°, the pulse was 120, and the respirations were 40 in the minute. In the evening the temperature again rose to 103·4°, the pulse to 128, and the respirations to 44.

From this time the temperature ranged in the morning between 102·7° and 103·4°, and in the evening between 103·4° and 103·6°, the pulse being from 116 to 120, and the respirations 40 to 50.

On the morning of the 29th the temperature was 103·7°, and in the evening 105·2°, and the same temperature was noted on the evening of the 30th. At 10 p.m. that evening it was 106°, and at 11.50, 107·4°. He died at 2.24 on the morning of July 31st.

On examination the pericardium was entirely adherent to the heart by old attachments. Both lungs were collapsed and congested in the lower and posterior parts. The right lung was firmly adherent to the parietes. The anterior portions of the lungs were emphysematous, the bronchial mucous membrane was reddened and thickened, and the tubes were filled with muco-purulent secretion. The cavities of the heart were enlarged, and its substance was soft and friable; the organ weighed twenty and a quarter ounces. The liver was large and soft.

Abstract of age and sex and proportion of cases in which cardiac complication occurred in cases included in the three reports.

	Males.	Females.	Total.	
At and under 20 years of age	89	92	181	45·9 p. c.
At from 21 to 40 . . .	105	84	189	47·9 p. c.
,, 41 to 55 inclusive .	11	13	24	6·0 p. c.
	205	189	394	
	52 p. c.	47·9 p. c.		

Of the whole number 129, or 32·7 per cent., had some form

of decided recent cardiac disease, either alone or combined with old disease, and 40 others had old disease; so that there existed cardiac complication either recent or old in 169 cases, or 42·8 per cent., or 1 case in 2·3. Of the whole of these cases, 6 proved fatal. In all these cases, there being old disease of the heart with other serious complications, and in all except, perhaps, one of them, the patients had had previous attacks of rheumatism. The mortality, therefore, in the 394 cases was 1·5 per cent.

DIPHTHERITIC OPHTHALMIA.

A PAPER PREPARED FOR THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION AT CORK, WITH ADDITIONS.[1]

By EDWARD NETTLESHIP.

Although this disease has received a large share of attention, especially in Germany, where, in its worst forms, at any rate, it is much commoner than in other countries, there are several points upon which more information is needed, and for which we may look as much to general practitioners as to ophthalmic surgeons. The points upon which I particularly wish to invite discussion and the contribution of facts are the following four:

1. Is it desirable to retain the distinction, first drawn by Von Graefe,[1] between "diphtheritic" and "pseudo-membranous" or "croupous" ophthalmia? The "diphtheritic" ophthalmia of Von Graefe is characterised in its first stage by solid, pale infiltration, a bloodless condition of the conjunctiva, formation of very adherent membrane, extreme brawny swelling of lids, and scanty thin discharge. In the "pseudo-membranous" or "croupous" cases we find a coherent pellicle of discharge adhering but slightly to the conjunctiva, which is succulent and bleeds easily when touched; usually there is also purulent or muco-purulent discharge. It is admitted by Von Graefe, and all later writers, that cases intermediate between these two types

[1] A short abstract was published in the 'British Medical Journal,' 1879, vol. ii, p. 327.

are seen, but they have for the most part been taken as exceptions rather than connecting links, and in the latest and most elaborate works the distinction is still maintained.[2]

I, of course, admit that there is the greatest possible difference in prognosis between the worst cases characterised as diphtheritic by Von Graefe, and the milder cases of "membranous" ophthalmia; in the former the eye is often totally lost with great rapidity, and the conjunctiva becomes scarred and atrophied; in the latter no permanent harm results.

But I believe that a more careful study of the characters of these so-called two diseases will show that they are essentially the same, and that the term diphtheritic is equally applicable to both. Thus, for example, we cannot distinguish between the two forms by the local severity of the morbid process, for there are mild and severe cases of each form. In one of the earliest cases on record (Bouisson[3]) the eye was lost, and the conjunctiva passed into the markedly atrophic state signalised by Von Graefe as characteristic of his true diphtheritic disease; yet the conjunctiva was never hard and dry, but was succulent, and puro-mucous discharge was present with the membrane from the beginning. Hutchinson,[4] and Mason[5] of Bath, have recorded cases of violent membranous ophthalmia leading to loss of both eyes, but in which the conjunctiva was freely vascular, and never became hard and bloodless. Cases, more or less similar, could be quoted from other authors.[6, 7, 9] Several years before Von Graefe's masterly paper on the subject, Chassaignac[8] had called attention to the frequent occurrence of membrane in ophthalmia neonatorum, and to the gravity of the prognosis which its presence implied, and his observations, almost ignored by many later writers, have often received independent confirmation.—Again, both forms agree in the frequency with which they are associated with a previously unhealthy state of the conjunctiva. The proneness of chronic granular lids, catarrhal ophthalmia, and other morbid conditions, to take on what the Germans call true diphtheritic ophthalmia, has been observed by many writers.[1, 7, 9, 13] The occurrence of the membranous variety in eyes which have lately suffered from some other ophthalmia is also noted by many. Thus, in Bouisson's case the eye had been badly inflamed three months before; in a case by Guersant *fils*[10] the order of events was: mild ophthalmia

for a few days; severe membranous ophthalmia; scarlet fever setting in two or three days later, and rapidly fatal; *post mortem*,—soft grey pulp lining tonsils and nasal fossæ, and thick membrane all over inner surface of eyelids. A scrofulous affection of the eyes had occurred in a case, by Gibert,[11] of diphtheritic ophthalmia following measles; one of Magne's cases[12] began like catarrhal ophthalmia; slight ophthalmia a few days before the membranous ophthalmia, and granular lids preceding it, is noted in two others by Warlomont;[6] severe catarrhal ophthalmia a few months before by Jabez Hogg.[14] —Again, both forms may be caused by gonorrhœa[9, 15] and by gonorrhœal and purulent ophthalmia; each may occur in the course of ophthalmia neonatorum, and each may in turn give rise to purulent ophthalmia. Thus, Von Graefe stated that many cases of his diphtheritic ophthalmia in children of two or three years old were traceable to contagion from cases of ophthalmia neonatorum, and that the diphtheritic disease when transmitted to adults often reproduced mixed or purulent forms. Hirschberg[9] gives two cases of diphtheritic ophthalmia neonatorum. Streatfeild[16] records a case of mixed "membranous" and diphtheritic ophthalmia neonatorum. Lewinski[7] gives the following cases:—1. A boy, æt. 9, had "diphtheritic" ophthalmia of the right, and "purulent" of the left eye; a few days later three others in the family, æt. 16, 10, and 7, all had the "purulent" disease, and subsequently the mother and her new-born infant got "diphtheritic" ophthalmia. 2. A father, æt. 33, "purulent" of right, treated by nitrate of silver, and followed in three days by "diphtheritic" of left; his three children all suffering from "purulent" ophthalmia when his attack began.—In both forms the "diphtheritic" or the "membranous" stage is commonly followed by a stage of purulence, but the order of events may be reversed in both, and a few examples of each occur where no purulent stage ever comes on. Hans Adler[17] saw "diphtheritic" preceded by "acute purulent" ophthalmia in four cases. Keyser[18] records a mixed "membranous" and "diphtheritic" case in both eyes recovering without any purulent stage. Jacobson[19] saw three chronic cases of diphtheritic ophthalmia, affecting only one eye, in children from four to six years old, passing from the first to the third (or atrophic) stage without any suppurative (or

second) stage.—Either form may occur in one eye whilst purulent ophthalmia attacks the other; Lewinski has given in addition to the two already quoted several others of the same kind, *e.g.* F., æt. 26, "diphtheritic" of left, slight purulent of right. M., æt. 6, intense purulent of both, followed by "diphtheritic" (apparently mild) of right. F., æt. 2, catarrhal ophthalmia; a few days later intense typical "diphtheritic" of right, with "purulent" of left.

If we examine the cases in which some general disease has been accompanied by an ophthalmia entitled diphtheritic, we shall find that in some cases the eye disease had conformed strictly to Von Graefe's definition, whilst in others it was clearly of the "membranous" or "croupous" type with vascular and freely bleeding conjunctiva. Indeed, in some of the very worst cases, occurring in connection with severe scarlet fever, measles, or other serious conditions, the ophthalmia has been of the "membranous" variety.—For cases of "typical diphtheritic" ophthalmia in the German sense, occurring in the course of *measles*, reference may be made to Gibert;[11] with primary *throat diphtheria* to Hirschberg[9] and Adler,[17] who have seen two cases in adults, aged fifty and sixty-four years respectively, and ending fatally. Adler also gives a double severe diphtheritic case following *scarlet fever* in a child, and ending fatally from renal disease. Cases in children who died of bronchitis or enteritis have been seen by several observers.[9, 11]

Of severe "membranous" cases in connection with general diseases many are on record, in the incubation stage of scarlet fever[10, 4], with diphtheritic ulceration of throat after scarlet fever[20], with primary diphtheria of throat[21]. Thus Magne[12] gives the following case:—A young child, with well-marked membranous disease with "gangrenous" patches on eyelids, but conjunctiva succulent; good recovery; a child had died of throat diphtheria in the same house two days before, following measles. Mason[5] records a case of severe membranous ophthalmia with ichorous discharge but freely-bleeding conjunctiva, during convalescence from measles, recovery followed in a month or less by severe relapse of same ophthalmia and loss of both eyes; scarlet fever and discharge from nose two weeks after onset of this relapse, quick recovery from scarlet fever, persistent refor-

mation of membrane firmly attached by broad peduncle to upper lid, the borders being free "like a lichen on a tree," for at least seven months.

It may be observed, finally, that both forms of ophthalmia are commonest in childhood, but that examples of each are not infrequent in adults, and that symmetry is by no means invariable in either. The only important difference as to age is the extreme rarity of what the Germans consider "true" diphtheritic ophthalmia in new-born infants; a few such cases, however, are on record by competent German observers.

It would therefore seem most natural and useful to abandon the distinction between "diphtheritic" and "membranous" ophthalmia, regarding these affections as varieties of the same morbid process; and to use the term "diphtheritic" as inclusive of all cases where false membrane is present, whether there be solid infiltration of the conjunctiva or not.

Graefe distinguished three varieties of his diphtheritic ophthalmia according as there was scanty exudation through the whole thickness and whole extent of the conjunctival tissues, dense infiltration of the whole extent, but limited to the superficial layers, or localised patches of disease which may even pass beyond the border of the lid on to the skin. We may add that the so-called membranous cases present corresponding varieties, for the membrane may be either general and uniform or present only in one or more patches. We may here note Von Graefe's speculation that the liability of the conjunctiva to take on diphtheritic action was connected with its exposure to the air. I have been told of several cases in which the membrane began to form at the free border of the lid, and I have myself noted the same occurrence.

A remarkable fact in some cases is the extreme chronicity of the disease. Chronic cases are referred to by Jacobson and recurrent cases by Graefe, but the subject appears not to have received its due share of attention. The following are the best marked cases of this kind that I have been able to find. In 1863, Hulme[23] published two cases:—(1.) A child in which ophthalmia with purulent discharge began at the age of seven weeks, and was treated by caustics two or three times a week for three months, without benefit; admitted under Mr. Hulme at fifteen months with membranous conjunctivitis,

and remained under care for eighteen months, with mild treatment (till about three years old); the membrane continuing to reform during the whole time, and being still present when the child was last seen; latterly it had become pedunculated, being attached only at the retro-tarsal fold, and had often dropped off and grown again. The cornea did not suffer. (2.) An infant showed purulent ophthalmia at one week old; admitted under Mr. Hulme, aged three weeks, with great swelling of lids and well-marked membrane adherent to upper, but not to lower lids. Membrane continued to reform for months, and the child remained under care for fifteen months. Cornea not permanently affected. Neither scarlet-fever nor syphilis; child fat, flabby, well-fed; mother feeble health. (3.) Mason (1871) recorded a case (briefly given above) in which a pedunculated membrane reformed on the upper lid for at least seven months. (4.) Businelli[24] (1872)—A girl, æt. 12, healthy; April, 1870, severe ophthalmia ineffectually treated for a short time before admission, when Businelli found great inflammatory swelling of lids of both eyes, thick adherent white membrane lining all the lids, but none on ocular conjunctiva; no liquid discharge; cornea rather hazy, conjunctiva bleeding freely when membrane detached, and its surface roughened by fungous-looking granulation masses near attached border of tarsus; no constitutional symptoms; nitrate of silver (gr. about xv to ℥j) and scarification. Treatment for one month diminished the thickness, density, and adhesiveness of the membranes, but they continued to reform in a few hours after every application; great tendency to fleshy vegetation from the retrotarsal fold. She went away for some months and returned in the original state; five weeks' treatment again gave considerable improvement, but she again insisted on going home. December, 1870.—Re-admitted worse than ever, lids swollen; dense, firmly adherent membrane; subjacent conjunctiva especially towards outer canthus, as before roughened by irregular, bleeding, fungous vegetations, divided by deep sulci, some being even globular or flat and lentil-sized, and attached by thin long peduncles (4—8 mm. long) to the tarsal conjunctiva, and actually protruding from the palpebral fissure when the lids were closed; these pedunculated bodies were also covered by membrane. Again treatment gave marked benefit, but was interrupted in January, 1871. The corneæ were hazy in

the later period of the case. February, 1872, Businelli saw her again (nearly two years after onset), and found all the symptoms as before, but the cornea less hazy. Constitutional treatment had no effect. Her father had acute catarrhal ophthalmia, and his sister some form of conjunctivitis, but without membrane. (5.) In one of Hutchinson's cases[4] dense membranes were still present two months after the attack began. (6.) Jabez Hogg[14] saw a boy, aged fourteen months, with severe ophthalmia with dense white membrane, which reformed repeatedly for more than three months; both corneæ lost.

2. What is the relation between diphtheritic ophthalmia and (*a*) primary diphtheria of the throat and air-passages, (*b*) secondary diphtheritic inflammations of the throat and other parts?

Diphtheritic ophthalmia is rare in cases of primary diphtheria of the throat and air-passages. Trousseau,[25] it is true, states that he was meeting with cases of this kind in children every year, but adds that they occurred chiefly in the malignant form of the disease. Some of the epidemics of diphtheritic ophthalmia at Berlin and Königsberg occurred when diphtheria of the throat was prevalent, but this coincidence has been specially noted as wanting in other outbreaks of the ophthalmia. Individual cases of the coincidence here referred to are recorded by Warlomont[6] (M., 30, ophthalmia with membrane chiefly near free border of lids, and diphtheritic patches on lips, mouth, and soft palate; recovery). Hirschberg (F., 50, severe diphtheria of throat and death from hectic and dropsy; early in the case right eye superficial diphtheritic, left eye purulent ophthalmia; also a case of severe diphtheritic ophthalmia, with diphtheria of throat, in child of eighteen months, whose four brothers and sisters were all ill of throat diphtheria). Adler (M., æt. 64, slight diphtheria of throat, peracute and excessively severe diphtheritic ophthalmia, great increase in severity of general symptoms after ophthalmia set in, followed rapidly by death with very high temperature). Thompson[21] saw only one case in a very large epidemic of diphtheria. Dr. Gwyther (now of St. Mary Church) informs me that when house-surgeon to the Children's Hospital at Manchester about 1864, he saw two cases of diphtheritic ophthalmia in a large

series of remarkably severe cases of primary diphtheria. Cases in which a medical man is supposed to have caught ophthalmia of no great severity by inoculation with portions of membrane from the throat of a patient are given by Mr. Leonard and Dr. Morris[26] in their own persons, and quite recently by Hirschberg[9] (medical man, æt. 35; phlegm from patient with throat diphtheria coughed into face; next day acute ophthalmia of right, with shreddy discharge and moderate swelling; three days later left affected; some ulceration of cornea in right; recovery in about five days). Dr. Dickinson[27] has met with a case, in the practice of Mr. Evans, of purulent ophthalmia and inflammation about the navel in an infant a few days old, rapidly ending in death; at same time another child in the family died of diphtheria of the throat, and a third, aged two years, died with sore throat and dyspnœa after erysipelas of arm, which spread from slight sloughing ulceration between fingers. Three other children of family had diphtheria of throat at same time and recovered.

If, however, it is rare with primary diphtheria, it is common to find that the disease occurs during, or very soon after, an attack of some exanthem, or during an attack of broncho-pneumonia or severe diarrhœa in young children. The commonest of these precursors of diphtheritic ophthalmia is measles, the eye disease usually coming on towards the end of the disease, and apparently without any throat symptoms. Hirschberg has once seen the ophthalmia in the incubation stage of measles (F., æt. 2, diphtheritic ophthalmia, measles on eighth day; death from broncho-pneumonia on fourteenth day of ophthalmia, or sixth day of measles). Dr. Wilton, medical officer to the pauper school at Sutton, told me, in 1874, that after an outbreak of measles which had recently occurred in the schools, among a considerable series of cases of severe ophthalmia he had several well-marked diphtheritic cases.[1] A large number of the children in the Sutton school had granular lids at the time. Next to measles, scarlet fever is the commonest acute disease causing diphtheritic ophthalmia, the ophthalmia being often associated with post-scarlatinal diphtheria of the throat. Diphtheritic ophthalmia in the incubation stage, or forming the first symptom, of scarlet fever, has been observed by

[1] 'Med. Times and Gaz.,' 1875, ii, 329.

Guersant and Hutchinson. In Mason's remarkable case, already referred to (p. 24), the order of events was (1) measles; (2) diphtheritic ophthalmia; (3) relapse of same ophthalmia; (4) scarlet fever. Cases have also been seen in children suffering from whooping cough, variola,[1] and varicella.

In a certain number of cases the disease occurs in delicate children or infants suffering from acute pulmonary disease, or from severe diarrrhœa with febrile symptoms. Chassaignac[8] states that the subject of membranous ophthalmia neonatorum may die of diarrhœa or pneumonia if the eye disease be not properly treated, and, in another publication, said that he believed he had succeeded in reducing the mortality among his ophthalmic new-born infants from 1 in 3 (?) to 1 in 8 by the adoption of measures which shortened the eye attack.

Hirschberg considers that diphtheritic ophthalmia may kill little children by gastro-enteritis and diarrhœa, and by broncho-pneumonia, and mentions that the conjunctival affection alone may give rise to a temperature of 102° F.[2] Cases fatal from intestinal or pulmonary complication are also given by Coupland and others.

It must be added, however, that many cases of diphtheritic ophthalmia occur in apparently healthy patients, and in no ascertainable relation to any infectious diseases.

3. The conditions of the conjunctiva which favour diphtheritic inflammation are not without interest. A previously unhealthy state strongly predisposes to this disease. The especial liability of patients with granular lids is mentioned by all German writers (see also the note on Sutton school above), and the occurrence of some form of acute mild ophthalmia a few weeks or months before is noted by many writers; the conjunctivitis of measles, no doubt, accounts for the frequency of the malady after that exanthem. These facts

[1] Dr. Reuben Harvey, of Dublin, tells me that he has seen a bad case of diphtheritic ophthalmia in a young child suffering from semi-confluent smallpox, and previously in very bad health. The conjunctiva was vascular. Eye rapidly lost.

[2] Common catarrhal ophthalmia is very often accompanied by a rise of temperature; in one case I found it 103·0° F. "Contribution to the Natural History of Catarrhal Ophthalmia," 'British Medical Journal,' June 9th, 1877. (vol. i, p. 705).

are of great interest in connection with the commonly expressed opinion that an unsound condition of the mucous membrane of the throat predisposes to, or allows of, an attack of ordinary diphtheria.

4. Another important point is as to the relative frequency of diphtheritic ophthalmia in North Germany and its rarity in our own and other countries.

I cannot help thinking that this difference in geographical distribution, although, in the main perfectly true, has been over-rated, both from want of an uniform nomenclature and from the publication of slight cases in great numbers in Germany; whilst in other countries publication has generally been reserved for severe examples. Had a series like Lewinski's fifteen cases[7] occurred in England, many which he diagnosed as "diphtheritic" would, in all probability, have been called "purulent," since several of the cases showed mixed characters, or were purulent in one eye and diphtheritic in the other. Again, though English observers speak of the rarity of the disease at home, it is remarkable that Dr. Samelson, of Manchester, who translated Graefe's original paper into English, and had an opportunity of seeing some of Graefe's cases at Berlin, should have stated in 1872[28] that in and about Manchester the "true" Graefe's disease was very common. It would be really of much interest to know whether the other ophthalmic surgeons of Manchester use the same name for cases referred to by Dr. Samelson; for if, names apart, diphtheritic ophthalmia is much more frequent in that city than elsewhere in the kingdom, the fact should be made generally known. We may refer also to the important papers of Dr. Adler, of Vienna, in which he assures us that during the last few years the disease, formerly hardly known there, has become so common that, between October, 1872, and December, 1877, he collected seventy-four cases, of which no less than forty-six occurred in 1874. Dr. Adler attributes this prevalence partly to bad conditions of living amongst the poor from depression of trade, &c.[1]

[1] It is interesting to observe that the earliest account of diphtheritic ophthalmia was given by Dr. Jaeger, of Vienna ('Dissertatio de Conjunctivitide Membranacea,' Vienna, 1835), and that cases were described by various other authors between 1842 and 1850 (Arlt, 'Krank. d. Auges,' 1851, vol. i, p. 85).

In regard to the relative severity of the cases published in North Germany and elsewhere, we may gain some idea by comparing the proportion of eyes lost and badly damaged in the series published in different countries. Thus, out of about 190 available cases recorded as diphtheritic ophthalmia by several observers in North Germany, 80 eyes were either lost or seriously damaged (40 per cent.); in 8 French cases, 6 eyes were lost or badly damaged (75 per cent); in about 20 English cases, 11 eyes (55 per cent.); in 5 Swiss cases (Gibert), 4 eyes (80 per cent.). Dr. Jacobson, of Königsberg, saw 40 cases of typical Graefe's ophthalmia without serious damage to a single eye; a statement which appears scarcely reconcilable with Graefe's own account of the malady. Even Adler, though less explicit than Jacobson, tells us that 57 of his 74 cases were for the most part slight, or of the partial or disseminated varieties.

If we glance at the proportion of fatal cases we again find that North Germany shows a far lower percentage than any other country. North Germany in about 170 available cases, 10 deaths (6 per cent.); England about 20 cases, 3 deaths (15 per cent)[1]; France 9 cases, 1 death (11 per cent); Vienna 74 cases, 13 deaths (17 per cent.); Switzerland 5 cases, 4 deaths (80 per cent.); Spain 7 cases, 3 deaths (40 per cent). But notwithstanding *percentages* these *numbers* convince us that the disease is after all absolutely much commoner in North Germany and Vienna than elsewhere; ten deaths in the former, and thirteen in the one city of Vienna speak for themselves.

It is probable that the greater prevalence of granular lids in North Germany may, in some degree, explain the frequency of diphtheritic ophthalmia, and it is possible that other racial peculiarities of tissue (less recognisable than trachoma), or climatal conditions may have an influence.

In respect to granular disease, it would be useful to hear from practitioners in Ireland (where trachoma is so extremely common) whether cases presenting more or less diphtheritic characters are more frequent there than is generally supposed.

In reading some of the German accounts of the disease, especially the earlier ones, it is difficult to avoid the suspicion

[1] Not including the cases appended to this paper nor Mr. Tweedy's cases there referred to. These 15 cases with 1 death make the percentage about 12.

that facilities for contagion must have existed from which we in this country were at the same period comparatively free, and that probably not only diphtheritic, but also purulent ophthalmia was more abundant than here.[1] If this were so the frequency of diphtheritic ophthalmia in the same country would no longer be so remarkable. Thus Graefe tells us (1854) that many cases of diphtheritic ophthalmia in children of two or three years old were caused by contagion from ophthalmia neonatorum, and that adults infected by children with diphtheritic ophthalmia often showed a mixed or purulent form. Now, I believe I shall be correctly stating the experience of most British surgeons in saying that the transmission of ophthalmia neonatorum to other members of the household is, and for many years has been, with us a very rare event. It seems not improbable that to the prevalence of habits favorable to contagion, Graefe partly owed the abundant material at his disposal for studying and differentiating diphtheritic ophthalmia. Again, in Lewinski's series, already more than once referred to, we read of violent diphtheritic or purulent ophthalmia running through whole families and causing the loss of several eyes, of husband and wife losing all four eyes at a stroke, and similar occurrences.[2] The facts of Adler's epidemic of thirteen cases arising in a hospital for children after the introduction of a single case from without, although very possibly admitting of a satisfactory explanation on the ground of the disease being unusually contagious, nevertheless suggest the same train of ideas. His statement is to the effect that notwithstanding all ordinary preventive measures the disease continually spread from bed to bed seldom missing one out.

In conclusion, I may add that I have now seen a considerable number of cases both in the practice at Moorfields and amongst my own patients in which diphtheritic characters were present

[1] In making this suggestion I refer to children and adults living at home, not to schools, workhouses, foundling hospitals, &c., in many of which in our country purulent ophthalmia has from time to time been very prevalent.

[2] The figures which my friend Dr. Hirschberg has given ('Brit. Med. Journ.,' of October 4th, p. 535) in criticism of the abstract of this part of my paper ('Brit. Med. Jour.,' 1879, Aug. 30th, p. 327) are unanswerable, and although they apply only to his own practice, I am perfectly willing to believe that at the present time communication of purulent ophthalmia to other persons is as rare on the Continent as here.

in greater or less degree, always with membrane, and often with more or less infiltration of conjunctiva, and firm adhesion of the membranous discharge. Several of them have been ophthalmia neonatorum. Some of these cases are given below, and had all that I have seen been recorded they would have made the above proportions for England very different.

Appendix of Unpublished Cases.

Case 1.—Summer, 1875. F., about 4; one eye only; soft, tough chemosis and swelling of palpebral conjunctiva, but very little discharge and no membrane; cornea universally hazy for some weeks. Case slowly recovered in about two months. (Case under Mr. Hutchinson at Moorfields.)

Case 2.—March, 1876. M., 8 months, left, very slight case; grayish infiltration of conjunctiva and adhesion of its folds to each other, and slightly membranous discharge; eyes "weak" for some time before. Soon well. "Inflammation of chest" some time ago. No bronchitis. No contagion of any kind.

Case 3.—September, 1877. M., 2 years. Mixed, membranous and purulent; tough membrane; profuse bleeding; cornea hazy and ulcerated, but recovered. Left only. Measles three weeks ago; eyes were bad in measles, got better and relapsed; no vaginal discharge. Two others in family had measles same time, but no ophthalmia.

Case 4.—December, 1877. M., 14 months. (Norris.) Mixed, purulent and diphtheritic. One eye lost. Was attending at another eye hospital for some different disease when attack came on; mother attributed it to contagion from brush used at hospital.

Case 5.—February, 1878. F., 3 years. Severe muco-purulent with membrane adherent to border of lid in left. No contagion.

Case 6.—June, 1879. M., 30. (Ash.) Acute swelling with palish, not very hard chemosis, scanty discharge, thin adherent membrane, followed by well-marked purulent stage. Right only; cornea perforated. Was attending frequently for chronic granular lids when attack came on; ? contagion by brush. Good health.

Case 7.—June, 1879. F., 20. Gonorrhœal ophthalmia with

membranous discharge and infiltration and ecchymoses; conjunctiva bleeding readily, but discharge never became profuse. Eye lost. Other not affected.

Case 8.—(Under Dr. Dickinson's care at Hospital for Sick Children, October, 1878. Dr. Dickinson kindly allows me to publish it.)

Child, 1 year 9 months. Out-patient for some months with chronic pulmonary disease; ceased attending for two months, then right eye inflamed, and child became ill and was taken in. Great constitutional depression and irritability, some bronchitis; temperature higher than usual in diphtheria. No enlarged glands. I saw child on October 24th. Right eye typical membranous ophthalmia, with muco-purulent discharge; slight chemosis, but no infiltration; cornea normal. 26th. Health much better, temperature lower; still membrane on eye.

The ophthalmia soon got well, the left eye never suffered, and child's health much improved, but before leaving hospital caught a cold and died. *Post-mortem.*—Recent bronchitis, no old disease.

Another child in same family had ophthalmia with membrane, also limited to one eye, soon after the attack in the patient. No diphtheria in the house. They lived in an unhealthy part of Soho.

See also five cases, four of them membranous, reported from Mr. Hutchinson's practice, 'Med. Times and Gazette,' 1877, i, 337.

Case 9. *Single patch of chronic, tough, adherent membrane on ocular conjunctiva three months.*—Eva W—, æt. 15, November 19th, 1878 (St. Thomas's). An oval patch, as large as a three-penny piece, of tough, very adherent, wash-leather-like membrane (or slough?) on conjunctiva of left eyeball, below cornea; zone of surrounding conjunctiva infiltrated; general congestion of eye; the patch so adherent that even its edge could be barely separated by picking with forceps. Began three months ago "as a small spot." After it began an aunt in the same house had "ulcerated sore throat." Patient has had no other symptoms, and no enlarged glands. No burn or injury. Two medical men who saw it at an earlier period considered it "extraordinary." After about a month's treatment with *lapis divinus*, and a weak sulphate of zinc lotion, the patch of mem-

brane disappeared, though the surrounding conjunctiva was still infiltrated. Four months after admission a scar had formed at the seat of the membrane, but there was still some thickening.

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26. Second Rep. of Med. Off. to Privy Council, pp. 209 & 211, 1860.

27. Dickinson, Rep. of Committee on Membranous Croup and Diphtheria; Med. Chir. Trans., 1879, 117. (Dr. Dickinson has kindly furnished me with some particulars in addition to those given in the reference.)

28. Samelson, Rep. of 4th Internat. Oph. Congress (London), p. 125 (1872).

Since this paper was completed, an able contribution on the treatment of diphtheritic ophthalmia by the local use of

quinine lotion has been published by Mr. Tweedy.[1] Mr. Tweedy wishes to maintain the classical distinction between diphtheritic and membranous ophthalmia. In 1873 he saw a case of "unmistakable primary diphtheritic ophthalmia," and in 1876 another case, but of gonorrhœal origin. (1) In February, 1879, a third case, in a puny infant, æt. four months, of which full notes are given; severe typical Graefe's ophthalmia in the course of mild purulent while under treatment by silver; diffuse corneal opacity; complete recovery under local use of quinine lotion (three grains of sulphate to the ounce of water, with a minimum of sulphuric acid).

Several other cases treated at Moorfields, *at about the same time*, are briefly referred to.[2] (2) Child, eight months; lids very brawny; corneæ opaque; membrane began to form at free border of lids; complete recovery of eyes under the quinine lotion, but death from throat diphtheria two weeks after dismissal from hospital. (3) Boy, five years, pale and weak; right eye only; muco-purulent or purulent, complicated (after several weeks) with adherent membrane on lower lid, and opacity of corresponding part of cornea; recovery under same treatment. (4) Child, twelve months (Mr. Adams), both eyes, much swelling; membrane adherent at upper margin; right followed, and was worse than left; cornea not affected; same treatment; recovery with numerous small scars. Woman had died of throat diphtheria in neighbouring house. (5) Child, six week. Both eyes; membrane began to form at free border of lids and firmly adherent; corneæ hazy; same treatment; recovery with marked scarring. Diphtheria reported prevalent in neighbourhood. (6) Child, three months; membrane partly adherent; localised opacity of cornea; same treatment, recovery. Besides the evidence of association with throat diphtheria in Cases 2 and 4, all the cases occurred within a short time, and were from a district in London where diphtheria was very prevalent.

[1] 'Lancet,' 1880, i, pp. 125 and 282.

[2] Mr. Burnham, the house-surgeon at Moorfields, has given me some additional details.

ON CASES

OF

CONGENITAL DAY-BLINDNESS WITH COLOUR-BLINDNESS.

By EDWARD NETTLESHIP.

In the cases (about seventeen in number) here referred to, and eleven of which are detailed, one of the most prominent symptoms is, as the name implies, a defect of sight which is greater by day than in the evening or by artificial light. It is true that the patients do not usually come to us complaining of day-blindness, as the victims of retinitis pigmentosa come complaining of inability to see after dusk, it is for amblyopia sometimes with myopia that they apply. In addition to these symptoms there is always nystagmus, and very marked, sometimes complete, colour-blindness. The degree of amblyopia varies in different cases; in two cases (Nos. 6 and 7) it amounted to complete amaurosis. The defect is, so far as I have seen, stationary, and when the history is complete we always hear that the oscillation was noticed a few weeks, or, at most, about three months, after birth; the defect of sight may, therefore, be confidently dated either from birth or early infancy. The media are clear, and in many cases the fundus appears quite healthy; but in others (Cases 1, 3, and 7) slight changes are found, indicative of former neuritis or perhaps retinitis; it is to be particularly noted that there is never any pigmentation nor other indication of atrophy of the retina.[1]

[1] See Postscript.

In respect to cause I am only able to mention the significant fact that the disease appears often to occur in several children of the same parents, as pointing probably to inheritance of a morbid tendency, or possibly to the occurrence of actual intra-uterine disease of the optic nerves. Thus, my sixteen cases occurred in five families with thirty-five children.

Family I.—F—	. 11 children	. 6 cases.
„ II.—G—	. 5 „	. 1 „
„ III.—P—	. 6 „	. 4 „
„ IV.—C—	. 3 „	. 3 „
„ V.—G—	. 10 „	. 1 certainly, 2 probably,
	35	17

The theory of inheritance is strengthened by the occurrence of the disease in collateral branches of the same families (III and IV). The history of colour-blindness in an uncle of one of the patients (Case 1) may be noted in passing, though the account is too meagre to permit any conclusion as to whether it was anything more than ordinary congenital colour-blindness.

The association of the eye defect with feeble intellect, and even idiocy, is a point which these cases have in common with some other congenital or inherited affections of sight. As to the local condition we may conjecture, with a good deal of probability, that the symptoms depend upon a disease of the optic nerves behind the eyeball, a retro-bulbar neuritis, of which the intensity, and perhaps the precise seat, may differ in different cases, thus accounting for the exceptional occurrence in the worst cases of well-marked changes in the discs.

The peculiar symptom to which I desire to call special attention, the improvement of vision in dull light, is, in all probability, caused by the defect being greatest in the centre of the visual field, and thus forming a large and ill-defined central scotoma;[1] as, however, I was not able to measure the fields in any of the following cases, I can only conjecture that this explanation is correct. I may, however, point to the invariable

[1] For the explanation of this symptom *see* 'St. Thomas's Hospital Reports, vol. ix, p. 52.

association of central scotoma with improvement of vision in dull light, which we witness in tobacco amblyopia and in some other cases of acquired amblyopia, in support of this view; and to the view advocated by Leber, that a low degree of neuritis in the cortical layers of the optic nerve behind the eye furnishes the explanation of the symptoms in tobacco amblyopia and conditions resembling it.

I do not for a moment suppose that the cases narrated below are new to observers here or abroad, and have brought them forward simply as illustrations of one of the types of congenital amblyopia or amaurosis, which, so far as I can learn, has not yet received any separate notice. A case, apparently of the same kind, recorded by Donders in the 'Report of the Heidelberg Congress' for 1871, is referred to by Joye Jefferies in his work on 'Colour-Blindness,' p. 35, and Landolt ('Examination of the Eye,' p. 191) mentions four cases of congenital total colour-blindness with photophobia and pallor of the discs, which, not improbably, belong to the same category.

Family I. Case 1.—Miss Mary F—, æt. 25, tall, thin, very fair, but freckled skin, abundant light reddish-brown hair, teeth defective in enamel ("mercurial"), forehead at root of nose flattish. Hearing and other senses good; intelligent and excitable.

V. by daylight each $\frac{2}{200}$, and 6 J. at 4″; refraction E. or H. $\frac{1}{40}$. Ps. active. Constant, slight, lateral nystagmus. Visual field (finger test) shows no contraction.

Her great complaints are that she cannot see so well by day as by artificial light, and that she cannot tell colours.

In respect to the former point she said that in the daytime her sight was so bad that she was afraid to cross the street, whilst at night she saw so well that she could do so with ease and comfort, and that she could read small print by a light so dull that other people had to put away their books.

Suspecting that this symptom was related to the size of the pupils I dropped eserine into the eyes, and found, as I expected, that as soon as the pupils were of pin-hole size, the sight had become much worse.

Of colours she has not the slightest appreciation; she sorts the wools entirely according to their brightness (luminosity);

all colours look to her like shades of black and white, and she always dresses in black and white to avoid making absurd mistakes. As a rule, shades of green look brighter than correspondingly dark shades of red, but the yellows are probably the brightest to her, for on looking through various coloured glasses she preferred a rather dark yellow, and said it improved her sight very much.

Atropine acted fully, and the sight was made much worse by it; probably a slight dilatation might have given some improvement.

Ophthalmoscope.—Disc and vessels quite healthy (erect and inverted); a whitish haze of doubtful meaning about the Y. S. No certain changes.

There is no history of fits nor other illness in infancy. Her sight has always been exactly as at present, and the nystagmus is said to have been noticed at the age of three weeks.

Case 2.—Miss Kate F—, æt. 20, the youngest sister (of the family of eleven), resembles her sister Mary in build and complexion and in character of teeth, but her hair is redder. The condition of her sight and eyes is exactly the same as in the former case, with the single exception that her nystagmus is much more marked. Like her sister's, the oscillation is said by the mother to have begun about three weeks after birth; she was healthy in infancy.

V. Each eye singly 8 J., together 6 J., at 3″ and $\frac{20}{200}$.

She behaves precisely like her sister with coloured wools and papers, being totally colour-blind, and her sight in daylight is similarly improved by looking through a yellow glass. She sees much better in the evening and by artificial light. The spectrum looks to her like a light band or stripe of one colour, brightest in the middle, and becoming darker at each end; it seemed from her replies to look darkest at the violet end. With coloured papers red always looked to her much darker than green of the same shade. Of Stilling's coloured letters on a black ground the *blue* was "much lighter" than the other colours (sometimes "white"), next the *yellow*, then *green*, which is "very dark," and lastly *red*, which is "nearly black."

The following is a list of the family to which the above two cases belong:

(1) Family I. F—, eleven children, of whom the six marked * are amblyopic and colour-blind.

The list of the children is as follows:

(1) Male, died of abscess of liver in India; was an army surgeon. Had perfect sight, fair complexion, and reddish hair.

(2) Male, died a baby of teething and water on the brain. Good sight.

*(3) Male, æt. 35. Colour-blindness and reported to suffer from defective sight in exactly same way as the two sisters whose cases have been narrated. Can see well enough to earn his living as a book-keeper. Reddish-brown hair.

(4) Female, died at the age of sixteen of "abscess of the leg" and "consumption." Sight perfect. Very fair skin and brown hair.

(5) Male, æt. 31. Sight perfect. Very fair skin and sandy-brown hair.

*(6) Female, died at the age of sixteen after a fall. Was colour-blind and amblyopic exactly like the other two sisters. Golden-brown hair.

*(7) Female, æt. 27. Believed to be colour-blind like the others. Married, and has two children, whose sight is perfect.

*(8) Female, æt. 25. (Mary F—, Case 1.) Nystagmus, colour-blind, and amblyopic. Tall, thin, very fair skin with freckles, hair light reddish-brown and abundant.

(9) Male, died at the age of two years of "whooping-cough."

*(10) Male, æt. 22. Sight very bad, worst of all, but the defect reported to be of the same kind. Very light brown hair.

*(11) Female, æt. 20. (Kate F—, Case 2.) Symptoms identical with those of No. 8 (=Case 1).

Parents have good sight and no colour defect, but an uncle is reported to be colour-blind, and unable to distinguish red from green.

Family II. Case 3.—This is an isolated case in a family of five children. Master S. G—, aged about 16 (Mr. Hutchinson's patient). Intelligent and fairly grown; teeth perfect. He is the only one of five whose sight is defective. His sight

has never been better than now, and formerly the nystagmus was much worse than it now is.

June, 1878.—V. each $\frac{12}{100}$; M. $\frac{1}{20} = \frac{12}{70}$ or $\frac{12}{50}$; no material astigmatism. Reads smallest print at 10″. Constant minute lateral nystagmus. Sees better in dull than in bright light, and always wears dark glasses in the daytime for this reason; even artificial light must be duller for him than for other people or he cannot see well. He is almost totally colour-blind, but says spontaneously that in very bright sunlight he can see red. In the spectrum he cannot distinguish any colours, only different shades. It is "lightest" at the red end.

Trial with Stilling's, Snellen's, and other tests showed that he could not distinguish with any certainty between any colours except by their luminosity; red he usually named correctly when bright or when held very close; yellow, blue, and green are indistinguishable except by differences of shade.

Ophthalmoscope.—Media clear; M. about $\frac{1}{20}$. Discs rather pale; the right showing a white, semi-transparent, glistening band of fibrous tissue, extending beyond its margin in the form of a capital D, and beneath the large vessels; the left slight haze along the large vessels. At the Y. S. region of the left a single small round spot of choroidal disease (a "punched out" spot), and in right a few similar, but much smaller dots, seen by the erect image. These appearances seemed to point to the previous occurrence of a choroido-retinitis, possibly just after birth.

The only important facts in the history were as follows:—The mother told me that three or four days before the patient was born the "waters broke and came away," and that the confinement was rather quick. When born the child was scarcely alive, and was indeed laid aside for a short time as dead, only being revived by artificial respiration. For several days he hardly opened his eyes, and seemed not to see; and then, when open, there was for several weeks "a sort of red skin" over the eyes, which, however, the medical man did not think important. The patient is the only one of Mrs. G—'s five children about whose birth and early infancy there was any peculiarity.

Family III.—Cases 4, 5, 6, and 7 are four children of one family (P—), with eye symptoms very similar to those in

Cases 1—3, but in addition with defective intellect, amounting in two of them to imbecility.

Case 4.—Philip P—, æt. 15, very tall and big for his age, but decidedly childish and backward; light hair, but irides almost brown. Rapid nearly vertical nystagmus of small range; pupils act well to light and atropine; no ophthalmoscopic changes whatever, but choroid highly pigmented. V. $\frac{20}{200}$, and with + 8 reads 8 J. at 4″; refraction H., but degree not estimated. Sees best in the evening and in the shade. Totally colour-blind; "I can only tell between white, black, and brown;" asked for "brown" he picked up scarlet. Confuses between bright yellow, blue, pink, and full dark green, and between full dark green and scarlet. The blues and yellows always look disproportionately light to him.

Case 5.—William P—, æt. 13, well grown; light brown hair; grey irides; rapid vertical and rotatory nystagmus. Pronounces "Th" as "F." V. in daylight $\frac{20}{200}$, and with + 8 = 6 or 8 J. badly at 2½″. Sees better in the dusk. No ophthalmoscopic changes. Total colour-blindness, his behaviour with the wools being identical with that of his elder brother.

Case 6.—Gertrude P—, æt. 7, is quite idiotic, and appears to be quite blind. I could not make an ophthalmoscopic examination.

Case 7.—Ernest P—, æt. 3½. Idiotic, and so nearly blind that he can apparently only tell between bright light and darkness. Constant nystagmus of wide range. Pupils usually 3½ mm., but slowly dilate to large size when he sits for some time in the shade. Discs dirty yellowish-white. Complexion very fair. Thickening of one side of septum nasi. Can walk and talk a little.

Family IV.—Cases 8, 9, and 10 are the three children of Mrs. C—, a first cousin of Mrs. P— on the mother's side. Her children are, therefore, second cousins of the P— children, whose cases have just been given.

Case 8.—F., æt. 6. Was seen at Moorfields by Mr. Streatfeild and others when a year old. There is now slight nystag-

mus, which is said to be diminishing; the mother does not know exactly when it began, but is certain the child took notice quite well till it was about three months old.

Refraction H., but degree not measured. V. = letters of 12 J. held close (daylight); sees much better in the dusk, but in the daytime her mother dare not let her go out because she cannot see enough to avoid large objects.

No ophthalmoscopic changes made out, discs of good colour, and no retinitis pigmentosa. Total colour-blindness; she matches pale green with pink, blue, yellow, and grey. Intellect precocious, her mother considering her "too forward."

Case 9.—Æt. about 4. Nystagmus much more marked than in Case 8, and V. defective. No ophthalmoscopic changes made out; discs perhaps too red.

Case 10.—Æt. about 12 months. Nystagmus of about the same degree as Case 9; can see. No ophthalmoscopic examination.

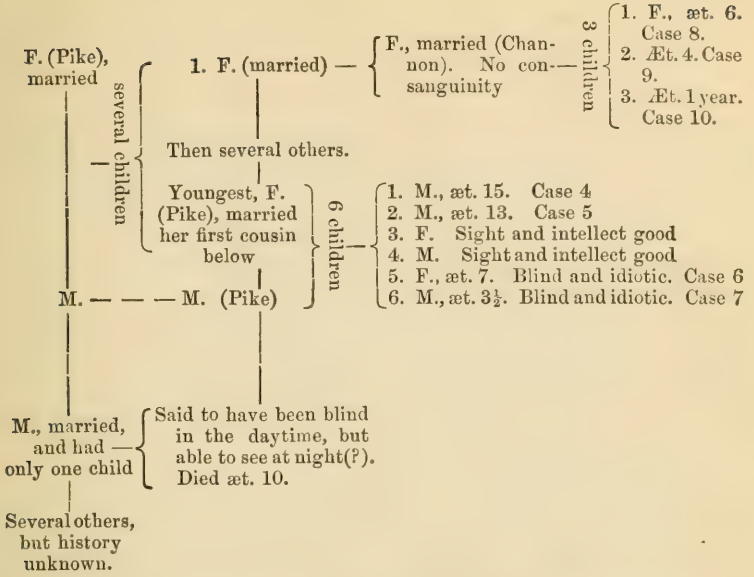
These two families of second cousins (III and IV) are especially interesting in connection with the influence of consanguinity of parents on the occurrence of defects in their children.

The children of the first family were the offspring of relations; Mrs. P— having married her first cousin; but the dependence of the disease on parental kinship is made much less probable by the occurrence of the second series in the family of Mrs. C—, where the parents were not related.

It is of course possible that there may have been consanguinity between the common ancestors of both families, and the unfortunate imperfections of the family history made it impossible to disprove this.

At a late visit Mrs. P— told me that a first cousin of her's, an only child which had died in childhood, was reported to have had bad sight in the daytime, and to have seen well at night.

The following table shows as much of the pedigree of these two branches of the family as I could collect:



Case 11.—Isabella Gleeson, 17, was in the Magdalen Ward at St. Thomas's in June, 1878. The history was imperfect, but in all probability her sight had been in its present state nearly all her life. V. less than $\frac{20}{200}$ with —20, which is the glass she chooses.

No ophthalmoscopic changes.

She stated spontaneously that her sight was best on dull days and in the dusk, and that she could not tell colours unless they were very bright. I did not test her completely, and can only say that she had defective perception of green, and probably to a less degree for red and violet.

She is one of a family of ten children, and two others besides herself are known to have bad sight.

Postscript.—Since the above cases went to the printer I have met with another family of which two members, if not three, suffer from *day-blindness and colour-blindness,* dating from very early in life, *combined with the ophthalmoscopic changes of true retinitis pigmentosa.* These cases are so extraordinary and of such interest in the present connection that I give the notes in detail.

FAMILY VI.—*Day-blindness, colour-blindness, and nystagmus, with retinitis pigmentosa and contraction of field, in two brothers; a sister said to be affected. Consanguinity of parents. History of melancholia in mother.*

CASE 12.—John G—, 23, a tall, coarse-featured milkman, with black hair and sallow complexion, came to the eye department in April, 1880, complaining that he could not bear bright light, and that his eyes became worse every summer. He blinked and liked to hold his head down, but there were no signs of external inflammation. He seemed very stupid, and I was on the point of dismissing him with a *placebo* in the belief that he had just recovered from some trivial ophthalmia, when I noticed that his eyeballs oscillated, and was thus led to make a careful examination, and Mr. Lawford, under my directions, made the following notes:—

Patient believes his sight has always been exactly in its present state. He has irregular nystagmus. He sees better in dull than in bright light, and this is evidently the cause of his fear of the bright light of summer; repeated and varied questioning fails to shake his statements on this point.

V. R. $\frac{20}{200}$, and 14 J. badly } Not improved by
L. $\frac{20}{100}$, and 14 J. badly } any glasses.

Visual field.—By the finger test, the fields are exactly symmetrical; they show great contraction in every direction except over a narrow tract in the downward and outward direction. Perimetrical examination of the right confirms this and defines the field as follows:

R.	Upwards	10°.
	Up.-in.	10°.
	Inwards.	10° or 15°.
	Down.-in.	15°.
	Downwards	15°.
60°	Down.-out.	20°.
*30°	Down.-out.	90°. (very narrow tract.)
	Outwards	20°.
	Up.-out.	15°.

The boundary was sharply defined and constant with test-objects of various sizes, except in this down-out tract, where, in

order to gain uniform replies, I had to use a large test-object.

Colours.—Considerable deficiency of perception. When asked to name coloured wools he calls green "blue," and names red, yellow, and blue correctly. But he confuses purple with dark green, yellow with pink, and light blue with pink.

Ophthalmoscopic examination.—Pupils atropised. Retinal arteries decidedly small, and optic discs rather pale, but not at all "waxy." Abundant pigment, in very characteristic bone-corpuscle shapes, all round the periphery, except over a narrow tract at inner side, which, as far forward as can be seen, is perfectly free; this is quite symmetrical in each eye, and corresponds exactly with the tract of normal visual field. Media all normal.

Case 13. (*Notes by Mr. Davidson.*) Edward G—, æt. 25, milkman, elder brother of the above, attended at request for examination. Has much the same symptoms as his brother. Says he sees better in dull light. Is more intelligent than his brother, and very fond of reading. Has irregular nystagmus. Pupils act sluggishly.

V. R. $\frac{2}{200}$, and 6 J. at 8″ } Slightly improved by +30 or
L. $\frac{2}{200}$, and 6 J. at 8″ } 36, but not above $\frac{2}{70}$.

Colours.—Patient is aware he has colour-blindness. He confuses light green with bright yellow, pale greys, pale blue-green, pale buff, &c., and rose with dark blue, dark brown, orange, pink, and yellow.

Visual fields (abridged from detailed perimetric map) show very marked concentric contraction as follows in each eye.

Upwards	R. 15°	L. 18°.
Up.-in.	„ 18°	„ 18°.
Inwards	„ 20°	„ 18°.
Down.-in.	„ 18°	„ 18°.
Down.	„ 15°	„ 25°.
Down.-out.	„ 28°	„ 25°.
Outwards	„ 18°	„ 20°.
Up.-out.	„ 18°	„ 20°.

Ophthalmoscopic examination (*no atropine.*)—Some pigment

at the periphery, especially towards lower part of retina; the amount is about the same in the two eyes.

Case 14.—Mary G—, æt. 34 (not seen), is said to be affected in the same way as her two brothers. She cannot see so well in bright light, and cannot face the light. "Her eyes move about very much." She is believed to see colours well. She is married and has two children living, whose sight is believed to be very good.

From the mother, who came at request, I obtained the following facts:—She and her husband were first cousins once removed. The husband died of heart disease aged 50. She herself is a nervous melancholic woman; married when 22 years old, and about the time the two amblyopic sons were born seems to have suffered from melancholia for a considerable time. She has had *nine* children, of which the *first, sixth,* and *seventh,* have imperfect sight. The remainder, of whom all are alive but one, are believed to have good sight. The defect of sight was noticed in all three when very young.

The pedigree is as follows:

M. (Gould), married.

M. — M.

M. — M. (Gould), died of heart disease.

M. — F. (Gould), melancholic

married 1st cousin once removed

9 children.

*1. F., 34. Said to be affected (Case 14).
2. M.
3. F.
4. F.
5. F. Dead.
*6. M., 25 (Case 13).
*7. M., 23 (Case 12).
8. M.
9. F.

ANNOTATIONS ON ANÆSTHETICS.

By SAMUEL OSBORN, F.R.C.S.,
CHLOROFORMIST TO THE HOSPITAL.

Having administered the anæsthetics at this hospital for some time, I have been asked to give my experience as to what I consider to be the best and safest mode of administration, and also to relate any interesting points which have been connected with that administration.

The three anæsthetics in general use are nitrous oxide gas, ether, and chloroform, arranged in their order of strength, it being necessary to employ one or other according to the length or variety of operation, or age of patient.

Nitrous oxide gas is used solely for dental operations, where the extraction of teeth, and such operations of short duration, can be performed within the space of seconds, for a prolonged use of this anæsthetic is dangerous, and therefore not applicable to any operation of magnitude.

As a rule, chloroform is administered to children under five years of age, and to adults above sixty; ether to all persons intermediate between those ages. The chief reason for which is this, that ether is given in all possible cases because of its undoubted greater safety. Ether, moreover, causes an increase of the heart's action, whereas chloroform decreases the same.

Chloroform is administered to old people because the inhalation of ether produces hyperæmia of the bronchial passages to so great an extent that a fatal termination is not unfrequently the consequence. In children the same remark applies, but in

reality they take any anæsthetic so remarkably well that either may be used without preference.

The process of anæsthesia may be divided in three stages, the first being that of cerebral excitement or loss of consciousness, the second accompanied by loss of sensibility, and the third by loss of motion. Beyond this it is not necessary to go, the final stage being one of total paralysis of all nerve centres. Generally speaking, the second stage is sufficiently profound for most operations. Instances where the third stage is essentially necessary will be described under the heading of administration in special cases.

Preparation prior to the giving of anæsthetics may be divided into ordinary and special preparation.

In ordinary preparation, no food should be partaken of for four hours previous to the giving of the anæsthetic, and the food then taken should be finely minced or in a liquid form, so that digestion may be thoroughly completed and the stomach empty. If this is not carried out more or less sickness is the consequence.

Patients prior to operation are in a high state of nervous excitement, and the function of digestion is consequently retarded, and so, by having the food minced, digestion is completed more rapidly.

Special preparation is called for in patients weakened by long suffering, such as those affected with cancer, long-standing cases of necrosis, and who may be characterised by the general term anæmic. These are the cases in which anæsthetics must be given with extreme caution, for from amongst these are usually to be found the fatal cases. A previous course of the most nutritious diet, accompanied by the administration of tonics, or, in other words, a feeding up prior to operation must be resorted to.

If chloroform is to be administered, brandy-and-water may be given beforehand, but no alcohol of any description should be given before the inhalation of ether.

In some cases it is found necessary to give an enema of egg-and-brandy during the operation, for when the patient is under the influence of an anæsthetic, the passage of fluid by the mouth is attended with danger.

When it is necessary to have a patient insensible during an

operation, *always have the anæsthetic given by some one who is in the constant habit of administering it, and who will attend to that solely.*

The patient, having been prepared, should be placed upon his back on the operating table, with the head slightly raised and all constriction by tight garments removed from the neck, chest, and abdomen. False teeth should be removed, and patients always asked prior to the commencement of administering the anæsthetic whether they have done so, as cases have occurred where, by some mishap, the teeth have become detached, and falling into the larynx have occasioned fears of asphyxia.

The warmth of the body should be kept up by being covered with a blanket, as in these days, when operations are mostly performed under the carbolic spray, the condensation of the steam occasions both damp and cold. Also the breathing of the patient should not be interfered with by the carbolic spray more than can be helped, the ether being already a sufficient impediment to the breathing.

When commencing any anæsthetic, the first inhalations should be freely diluted with air, and the patient gradually brought under the influence, for large quantities suddenly placed over the patient's mouth occasion gasping and struggling for breath.

When food is in the stomach patients are longer in getting under the influence of the anæsthetic, but as soon as vomiting has taken place they speedily become insensible. Sickness in the true sense of the term, or the bringing up of the contents of the stomach, seldom occurs when patients have been properly prepared. In some cases, even when food is withheld as long as recommended, sickness occurs, on account of digestion not having taken place, this being due to nervous influence consequent upon the impending operation. Vomiting is more frequent after chloroform giving than after ether, its excessive sweetness being the cause. Ether in its evaporation produces much irritation of the buccal and bronchial glands, and consequently the secretion of the respiratory tract is largely increased, and flowing into the stomach is sooner or later ejected, or, collecting at the back of the fauces, has to be removed. If the patient's head be inclined to one side, so that the saliva can

partially run away by the angle of the mouth, this is lessened, for according to the amount of saliva swallowed will be the amount of frothy vomit to be afterwards ejected. Pallor of face frequently precedes vomiting, and may occasion some anxiety, the colour returning as the act of vomiting is consummated. The alternating contraction of the abdominal muscles is the principal sign of impending vomiting, and if the anæsthesia be slightly increased, this can be subdued.

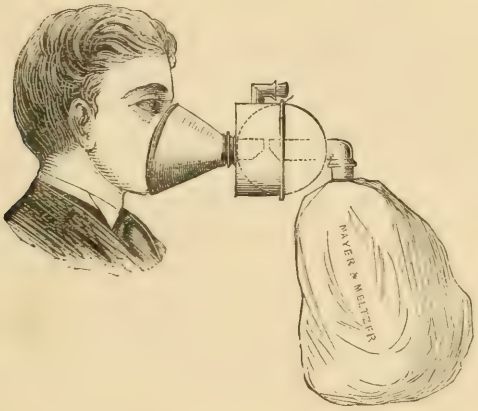
To know when the patient is sufficiently under the influence of any anæsthetic for the operation to commence, the conjunctival surface should be touched with the tip of the finger, and if no reflex action takes place, shown by the contraction of the orbicularis palpebrarum muscle, a sufficient degree of insensibility has been produced. In certain cases, which will be subsequently mentioned, it is not necessary to have even so profound anæsthesia as the above. When the patient is fully under the influence, he should not be moved about more than is possible.

The skin is undoubtedly the most sensitive part of the body, and much more so than the deeper structures or internal parts. The primary incision and the final passing of the sutures being more painful than the sawing of bone or handling of intestine, it behoves the chloroformist to have complete anæsthesia at the two extremes of an operation. This deficiency of sensibility in handling intestine is frequently noticeable in the operation of ovariotomy. An exception to this indifference of internal parts is seen in the washing out of the bladder after lithotomy or in the operation of lithotrity, both of which are extremely painful.

Chloroform (prepared with methylated spirit, and manufactured by Messrs. Wright, Layman, and Umney) should be largely mixed with air, and for this reason it is best administered on a piece of lint folded into a cone to fit over the nose and mouth, whereby a free admixture of air is allowed. When, in January, 1876, I communicated to the 'Brit. Med. Journ.' the mode of administering chloroform at St. Thomas's Hospital, I then stated that Millikin's modification of Snow's inhaler was the one in general use. This inhaler I used for a long time and was well satisfied with it, but I consider the administration of chloroform on lint to be far safer, as a sponge holds too large a

body of chloroform, and the quantity placed in the instrument must be accurately measured.

Ether is given with Mr. Clover's apparatus, as manufactured by Messrs. Mayer and Meltzer, of 71, Great Portland Street. Having used this apparatus for some time I can confidently



recommend it as being in my opinion the best, both as regards safety and comfort of the patient. It also consumes less ether. It is undoubtedly the least disagreeable to the patient, for any one having experienced a trial with this inhaler and another, has always given the preference to the one in question. The reason lies in the fact that the inhalation of their own expired air is gradually and imperceptibly changed to one heavily charged with ether, whereas other forms of apparatus necessitate a large volume of ether to commence with, which, after having been poured upon the sponge, in its evaporation lessens in degree instead of increasing in force. The sensation of the inhalation of ether to many patients is that "of its running down their throats."

The amount of ether (sp. gr. ·735, manufactured by Messrs. Burgoyne, Burbidges & Co., of Coleman Street) put into the cylinder, and which is sufficient for the longest operation, is about four ounces. This amount is frequently not used, but the cylinder should be thoroughly emptied and refilled prior to the commencement of each operation. Care must be taken that the sides of the india-rubber bag are not adherent to one

another at the insertion to the cylinder, for without the air passes freely to and fro from the bag, the patient is longer in coming under the influence.

Persons of great strength, also heavy drinkers, take a larger amount of the anæsthetic to produce unconsciousness than others, therefore no definite statement of the amount required can be made. To chloroformists of short experience the stage of excitability is generally an anxious one; the patient is not thoroughly cognisant of what he is doing, and may refuse to have any more of the anæsthetic, or to have the operation performed at all. If this occurs, the patient must be forcibly restrained, and the anæsthetic pushed. This is, of course, more difficult in private administrations, but must nevertheless be done, the patient not being responsible for statements made after the anæsthetic has been once commenced.

It is well to throw a towel over the upper part of the face and head of the patient, to effectually prevent any entrance of air; it also necessitates the patient keeping his eyes closed, and is useful at the same time for removing from the mouth the saliva which is secreted in so large an amount by the inhalation of ether. Thus administered, the discomfort and danger of taking anæsthetics is, I believe, reduced to the lowest minimum, for, with one hand always on the pulse and with an eye always on the respiration, any alteration in one or the other is at once taken notice of. But *neither ether nor any other anæsthetic is absolutely safe.* The inhaler should be occasionally raised, as any blueness of the face, with lividity of the lips or pallor of the face, are premonitory signs which the chloroformist must take into account, and regulate the administration accordingly.

Other instruments for administering ether may be used, amongst the best being the ordinary cone of leather with a sponge inside, or Mr. Ormsby's inhaler, but that form of apparatus is the best which one is in the habit of using most frequently.

Whilst speaking of caution, great objection should be made to the administration of anæsthetics in the wards, as frequently there is more difficulty in bringing the patients round. Whether this is due solely to their being unprepared, or due to imperfect ventilation, I cannot say; it has besides a depressing effect upon the other patients.

Lastly, one word of advice, and that is, *never keep a patient under the influence of any anæsthetic longer than is absolutely necessary.* The operator not unfrequently continues his demonstration after the patient is fully under the influence of the anæsthetic and ready for operation, or, led away by the interest of his case, or the remarks of bystanders, enters into a dissertation in the middle of the operation, or before it is thoroughly completed.

With reference to the treatment of patients after the administration of anæsthetics, no food should be given for the first twelve or fourteen hours after operation, but soda water-and-milk, or other cold or iced drinks may be taken. Patients should not be roused, but allowed to gradually sleep off the effects of the anæsthetic, a current of fresh air being allowed to freely circulate through the room.

A previous successful administration of any anæsthetic should not be taken as a criterion to its safety on a future occasion. For although a previous administration may be a proof of the patient taking any anæsthetic badly, the converse does not hold good, and a patient having previously taken anæsthetics well may, as the result of a protracted illness, take the same very badly on another occasion. Valvular disease of the heart, shown by cardiac murmurs, need be no hindrance to the administration of ether, a fatty heart which is not diagnosible by any auscultatory signs being the form of heart disease which is the most dangerous.

Feebleness of pulse, also, should not deter one from the administration of ether, for although a very small amount of ether will be required to produce insensibility, the pulse will, under its influence, generally improve, and should it not do so, the patient may with care be carried through the operation. This was noticeably the case in a patient almost moribund operated upon by Mr. Francis Mason for ovariotomy.

In giving anæsthetics for cases operated upon with the aid of Esmarch's bandage it will never be found necessary to produce very intense anæsthesia, not even that amounting to insensibility of conjunctival surface, for the constriction by the tourniquet so deadens the limb that sensibility is blunted. Also in patients suffering from shock the amount of anæsthetic

required is less in amount than in ordinary cases, on account of the nervous sensibility being already partially paralysed.

The administration of anæsthetics for eye operations is more dangerous than that for other operations, the reason being that very deep anæsthesia has to be produced before the conjunctiva will remain insensible throughout the whole of the operation. In the removal of cataract, where coughing or struggling at the critical moment of extraction of the lens may spoil the whole operation, it is better to give ether first, and subsequently follow it up with chloroform. In the reduction of dislocations the administration of chloroform is always required. Ether may be primarily given, and subsequently chloroform, but the former alone does not produce a sufficiently prolonged paralysis of the muscular system for the accomplishment of the reduction. Shock may kill a patient whilst under the influence of an anæsthetic, death resulting, not from the effects of the anæsthetic, but solely from shock. For cases of sudden death have occurred on the operating table prior to the administration of any anæsthetic, and to which the fatal termination would have been attributed had any anæsthetic been given. A lowering of the pulse has been said to follow excision of the testicle; I have never experienced such a result, although I believe it to be quite possible in some constitutions, the more highly cultivated being the more sensitive. In more serious operations, such as the removal of a limb, &c., I have undoubtedly noticed an alteration in the pulse, and from the lowering of the pulse on the one hand, to a fatal syncope on the other, is only a question of degree. Shock was well exemplified in a case of amputation at the hip-joint operated upon under ether by Mr. Croft. In this case the pulse stopped immediately the pressure was taken off the abdominal aorta, and not when the limb was amputated. The remaining leg was immediately bandaged and the head being lowered, the heart again recommenced its action.

Death may occur from cerebral hæmorrhage, the diseased blood-vessels of the brain giving way under the increased blood pressure.

Death may also occur from failure of the heart's action (syncope) or from failure of respiration (asphyxia), the former being the more frequent cause. Impending symptoms of the

former are by far the more serious of the two, for the heart's action once having stopped it may never be resumed, whereas respiration may be artificially carried on. I have seen one death occur during the inhalation of ether. The case was one under the care of Mr. Mac Cormac, in a man of forty-five years of age, being operated upon for malignant growth of the rectum. The patient had been previously prepared, and after having been placed in the position for lithotomy, and the sphincter ani forcibly split, the heart's action suddenly stopped and was never resumed. The face was at first pallid, but subsequently became turgid. Ether had been given for twenty minutes, seventeen drachms being the amount used. He became quickly under the influence, the first stage of excitability being hardly at all shown. No vomiting occurred. Every means were tried to resuscitate the patient, but without avail. The post mortem showed œdema of the right lung, and both lungs greatly adherent to the pleural surface. The smell of ether was very noticeable in making sections of the lung. Heart healthy and valves perfect.

Ether usually causes first a failure in the respiration, whereas chloroform causes first a failure in the pulse.

Ether may be given as an accelerator of the heart's action; this was well shown in a little child being operated upon by Mr. Sydney Jones. The child's pulse failed three or four times under the influence of chloroform, and necessitated its discontinuance. Ether being substituted, the heart regained its strength, and the operation was safely conducted. I have since, in other cases, administered ether as a stimulant to the heart when symptoms of its decreasing power have occasioned alarm.

In cases of threatening asphyxia never trust solely to thrusting the lower jaw forwards, but forcibly draw the tongue out of the mouth by forceps. Artificial respiration, after Silvester's method, must be immediately commenced and carried on until all hopes of recovery are at an end. Whether air enters the lung can be determined by the more healthy appearance of the face, as well as by hearing the air passing freely to and fro. Œdema, or spasm of the glottis, or obstruction in the trachea, must be met by immediate tracheotomy, and patients have

been frequently saved thereby. From observations lately made by Dr. Howard ('Lancet,' May 22nd), it is probable that traction upon the tongue has no effect in raising the epiglottis; therefore, if traction upon the tongue does not relieve the threatening asphyxia, by allowing a freer current of air to enter the lungs, tracheotomy must be immediately performed. The venous congestion is also relieved by opening one of the external jugular veins, and at the same time, as a good current of fresh air is allowed to reach the patient, the skin may be stimulated by flicking the chest with the wet corner of a towel.

Such is the treatment of threatening asphyxia, the diagnosis of which from one of syncope is of the greatest importance, as the remedies applicable to the latter materially increase the symptoms of the former.

In threatening syncope the feet of the patient should be raised and the head lowered, with the limbs bandaged, so as to keep the blood in the centre of the body. An intermittent action of the galvanic current should be applied over the region of the heart or subclavian triangle, and the vapour of ammonia or, better still, ether, applied to the nostrils. As a *dernier ressort* electro-needle puncture of the heart may be tried, but its success is questionable.

In conclusion, I would impress upon all surgeons these main points in connection with the administration of anæsthetics:

1. Always have the anæsthetic given by some one who is in the constant habit of administering it, and who will attend to that solely.
2. Never administer anæsthetics unless absolutely necessary.
3. Neither ether nor any other anæsthetic is absolutely safe.
4. Never keep a patient under the influence of any anæsthetic longer than is absolutely necessary.

JOTTINGS FROM THE SURGICAL OUT-PATIENT ROOM.

By H. H. CLUTTON, M.B., F.R.C.S.,
ASSISTANT SURGEON TO THE HOSPITAL.

Mr. Arnott some few years ago wrote a paper in the 'St. Thomas's Hospital Reports' with the above title. His success in so doing has encouraged me to hope that some few of the cases seen in the out-patient room during the last year, might be reproduced in the 'Hospital Reports,' and made interesting to its readers.

I should like, however, to preface my remarks by saying that to take more than the briefest notes in the out-patient room at the present day requires almost superhuman efforts. The mass of patients that present themselves for treatment, and the students who crowd for information, totally preclude note-taking in any but the most modest and meagre form. Many cases have consequently been necessarily excluded which would otherwise have been recorded, the notes as to previous history being incomplete.

Bullous dermato-syphilis.

The accompanying woodcut is taken from a photograph of a woman who developed a well-marked bullous eruption during an attack of syphilis.

Bullous dermato-syphilis is so exceedingly rare in the adult that I determined immediately on seeing the patient to obtain a faithful record of the case by means of photography.

Fig. 1.



September 23rd, 1878. E. C—, æt. 21, single, had been suffering from "ulcerated throat" for five weeks. She denied ever having had any venereal disease of any kind. The throat, however, was quite sufficient evidence of the disease, as it was undoubtedly syphilitic. An eruption appeared on her face about a week before coming to the hospital in the form of "blisters which soon burst." It then attacked her arms above the elbow, and about thirty-six hours before she came to the hospital the eruption began to appear on the forearms. Her face and the arms above the elbows were covered with the remains of the eruption in the form of stains, scabs, and superficial excoriations. Both forearms exhibited the eruption at its height, and presented numerous bullæ, some of which were of considerable size, whilst others were very small. She stated that all the marks on her face and arms had been preceded by these bullæ. She had never had anything of the sort before, nor, indeed, an eruption of any kind. There were no stains on the hands or wrists, and she was quite sure that there had never been any bullæ lower than the ones now seen. Those represented on the right wrist in the woodcut are inaccuracies.

She rapidly improved under mercurial treatment, and in

three weeks there was nothing but stains left to indicate the position of the eruption. She remained under observation for six weeks, and as her throat at that time was well, and she had no recurrence of the eruption, she discontinued her attendance.

There was no difficulty in the diagnosis, for the patient was evidently suffering from syphilis. No *history* of syphilis could be obtained, but her throat was quite characteristic of the disease, the soft palate being covered with raised white patches. The bullæ were too large to be mistaken for bullous *hydroa*, and were not surrounded by areolæ of erythematous inflammation. In hydroa, too, the eruption is especially common on the backs of the hands; in this case of dermato-syphilis the hands were entirely free. The eruption was wonderfully symmetrical, but then we know that eruptions in syphilis are also commonly symmetrical. There was no pain or inflammation about any of the joints, such as is usually met with in bullous hydroa.

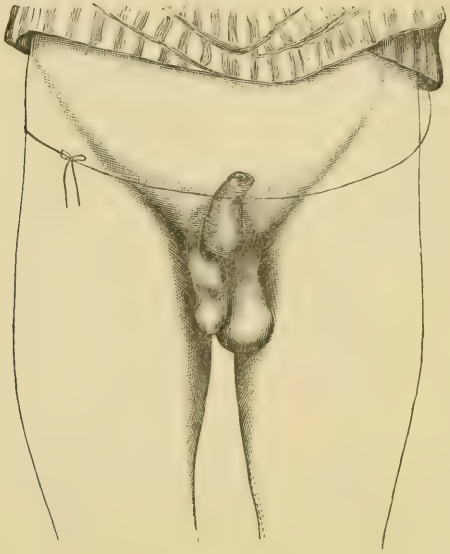
This case might, however, have been a very mild attack of acute pemphigus, independently of syphilis; there were no constitutional symptoms, such as are usually seen in acute pemphigus; the eruption speedily disappeared under mercurial treatment, and did not recur. Cases, however, of acute pemphigus are occasionally met with in which the eruption comes out in successive crops, much as it did in this patient, the affection terminating at the end of two or three weeks. And if this patient had not had a syphilitic throat I presume it would have been considered a very mild attack of acute pemphigus.

Compensating hypertrophy of testis.

W. B—, æt. 14, came to the hospital for what he called a rupture. As will be seen by the accompanying woodcut, fig. 2, he has two small swellings in the right half of the scrotum, the lower one of which is in the position of the testicle. On the opposite side he has a remarkably large testicle for a boy of his age. The right testicle is apparently undeveloped, never having been larger than it is now, and is merely represented by a fibrous nodule at the bottom of the scrotum, to which the cord can be traced. This body is also free from the

characteristic symptoms complained of when pressure is made between the surgeon's finger and thumb upon a healthy testicle. Above it and attached to the cord is a small fluctuating swelling—an encysted hydrocele—of the cord, which can be pressed up into the inguinal canal and again protruded by coughing or traction on the cord. This hydrocele he has had

Fig. 2.



for a long time, "can scarcely recollect when it first came," varying in size from time to time, sometimes larger, sometimes smaller than it is now. On the left side the testicle is so large for a boy of his age that we thought at first he had a vaginal hydrocele; however, that idea was soon dispelled by an examination of the part, which proved it to be nothing more than an unusually large testicle. This healthy enlargement is undoubtedly an hypertrophy consequent upon the undeveloped condition of the right testicle.

This is not so very rare at this age, although it is so somewhat later in life. While the testes are still developing, should one from any cause be cut short in its progress towards maturity, the other frequently exhibits this compensating hypertrophy.

No history could be discovered of the boy ever having had any inflammation of the testicle as a child or as a baby, although I questioned his mother very closely; nor had he ever had mumps. So that this was a case probably in which the testis had merely remained undeveloped from some eccentricity in nature. It is curious that this undeveloped condition should be associated with an encysted hydrocele of the cord.

This boy has lately (May, 1880) reappeared in the out-patient room, and in the place of the encysted hydrocele has now a well-marked hernia. The unobliterated portion of processus vaginalis which formed the encysted hydrocele has, I presume, had its upper opening re-established. Without the previous accidental presence of fluid in this unobliterated portion of the processus vaginalis one could not say that this hernia was one of that variety dependent upon a congenital imperfection of the processus vaginalis. That hernia in children and young adults is frequently dependent upon this imperfection is made more than probable by such a case as this. Without the previous presence of an encysted hydrocele of the cord we rarely obtain any evidence of any portion of the processus vaginalis being unobliterated between the rings and the epididymis. This imperfection must be much more frequent than we usually suppose, if this secreting structure bears any relation to the tunica vaginalis. Hydrocele of the tunica vaginalis is, of course, common in children, and the percentage of male children thus affected is naturally much greater than those with encysted hydrocele of the cord; but if the presence of fluid in the unobliterated funicular portion of the processus vaginalis is an accidental complication, as it is in the hydrocele of the tunica vaginalis, then the number of children with this process incompletely closed must be very great, as it is reasonable to suppose the fluid only forms in a certain proportion of cases as it does in the tunica vaginalis. A hernia that descends into the tunica vaginalis is easily diagnosed as one dependent upon the congenital imperfection of the processus vaginalis, which has not been closed at any point, but the obliteration commencing simultaneously both at the inguinal rings and at the testes may be arrested at any spot, or delayed in its completion, forming a ready means for the formation of a hernia; and the presence of an encysted hydrocele is the only evidence we have of such an imperfection

before the descent of a hernia. The presence of fluid in this closed sac being, as I believe, quite an accidental complication, it seems probable that this imperfection is of quite a common occurrence, and, therefore, that hernia in the young must be, to a great extent, dependent upon the imperfection of the processus vaginalis.

Neuralgia and vaso-motor disturbance from a scar.

G. C—, æt. 14, errand boy. Eighteen months ago he was bitten by a dog in the face; it healed in a few weeks, and has been perfectly painless till a month ago. Since then he has had constant shooting pains in the neck, always starting from the scar.

On examination there was found a very small white scar just above right angle of mouth; very distinct thickening could be felt with finger and thumb; this pressure produced great pain in the exact seat of the scar, shooting backwards into the neck. Pressure also in the neck just below the angle of the jaw produced the same pain. At the time this pain was felt the angle of the mouth was drawn outwards, and the skin over the neck wrinkled by the action of the platysma. The whole of the same side of the face and neck became suffused with blood, so as to produce a distinctly unilateral blushing, which slowly died away in the course of a few minutes. These symptoms were reproduced as often as the scar was pinched; the whole of that side of the face and neck then became moist with perspiration. He stated that, independently of any handling, these attacks of pain, spasm, and blushing occurred about three or four times a day.

It is curious that, although the scar had been there for some eighteen months, he had had none of these symptoms till a few weeks before coming to the hospital. It is probable that some filament of the fifth nerve was involved in the cicatrix, and a reflex inhibitory action of the vaso-motor centre thereby produced. That part of the vaso-motor centre which controls the region affected may possibly have been the seat of disturbance, inasmuch as there was no indication of any change having taken place in the scar since the accident, and no operation upon the scar was found necessary for its cure. He was ordered Croton Chloral Hydrate, gr. v, b.d.s., and on returning a week afterwards

he said he had not had another attack of pain after the second day of taking the medicine.

Galactocele.

S. B—, æt. 39, married, has had eight children. She never had any lump in either breast before her last confinement, fifteen months ago. She suckled with right breast for thirteen months, and with left till a week ago. Ten months ago she first noticed a small lump in the right breast of about the size of the terminal phalanx of the thumb ; this has gradually increased till the present time ; it has never increased or diminished in size, to her knowledge, after suckling. Examination revealed a large, distinctly fluctuating, painless swelling in right breast, without any inflammatory infiltration at its margin, situated beneath the areola and extending into the substance of breast towards the sternum. No fluid escaped from the nipple on pressure, nor has she ever noticed such a condition.

The absence of any œdema or induration at its margins, together with the perfect freedom from pain and tenderness, and at the same time its evident connection with lactation, led me to believe that this was a milk cyst. It was tapped with the trocar and canula, and half a pint of milky fluid evacuated. When she came a few weeks afterwards, only on careful examination could any fluid be detected, and in a few months all trace of it had disappeared.

Galactocele is of itself sufficiently rare to induce me to record this case. Still more rare is it for one of these tumours to entirely disappear after tapping. Whether the tumour is the result of the rupture of a duct and the consequent escape of milk into the surrounding cellular tissue, or whether it be the dilatation of the obstructed duct itself, one would still expect the lining membrane to continue secreting after simple evacuation. In the case of the dilated duct much the same condition would be found as in the so-called duct-cyst, while the same glairy fluid is continued to be secreted after the first evacuation, till the cavity is obliterated by adhesive inflammation. And a cyst that has arisen in the cellular tissue from the escape of such a fluid as milk into its meshes, would be lined, one would think, at the end of a few months by a so-

called pyogenic membrane, like that which, as experience teaches, is not obliterated except by adhesive inflammation. The tapping was here adopted as a means of confirming the diagnosis. It was my intention, had it reaccumulated, to make a free incision into the cyst and let it granulate up from the bottom.

That it will reappear at the next lactation, should she again become pregnant, is highly probable. It must then, of course, be treated by free incision.

Galactorrhœa.

Mrs. R—, æt. 24, married eighteen months, came to the out-patient room on January 23rd, 1880, complaining of a profuse discharge of milk from both breasts since her confinement, six months before. She had only "nursed" her baby for one week, as the milk had "turned sour from a fright," and when the baby was again put to the breast he refused to take the nipple. The secretion from both breasts has been ever since most excessive, the milk continuing to drop from both nipples without any cessation. On one occasion she collected as much as flowed naturally from the breasts without any pressure between 9 a.m. and 3 p.m; this amounted to a quart, and at the same time her clothes were saturated through her inability of catching all that ran away. She wore a flannel shirt of her husband's next her skin as her linen so constantly wet was a source of great annoyance and discomfort. Round her waist immediately below her breasts she placed a small folded blanket to catch the milk. This fairly answered the purpose for which it was intended, but occasionally the milk came through even that, and ran down the front of her dress. At night she placed a blanket beneath her, folded so as to have six layers of the same between her and the mattress, and also wore two of her husband's flannel shirts, and still it soaked through all these and stained the mattress.

She had lost flesh and weight, and was now extremely weak and feeble. She had not menstruated since her confinement, and was troubled with a leucorrhœal discharge. On examination of the milk, some of which she had brought in a bottle for my inspection, I found the specific gravity to be 1030,

which would be about the normal density of human milk during lactation. The microscope also proved that the milk consisted almost entirely of healthy oil globules. Both breasts had been strapped with Empl. Belladonnæ, but without any improvement. I sent her to consult Dr. Cory, as I feared some uterine disturbance might be the cause of this unusual flow of milk continuing for so many months after having weaned her baby. He advised the continued application of belladonna to the breasts and the internal administration of bromide of ammonium. The uterine examination he wished to postpone till the failure of other treatment had been proved. The bromide of ammonium producing no improvement, it was changed for Ferri et Amm. Cit. and iodide of potassium. Still no benefit was derived, the discharge of milk continuing day and night as before. Then discarding the application of belladonna to the breast, they were each most carefully strapped with long strips of Leslie's brown holland strapping, reaching from the spine to the opposite clavicle, and compressed from above with other long strips across the chest, and again by others placed obliquely; over all a bandage was applied. For two days she was in considerable pain with headache, fever, and sleepless nights, but from that time the discharge began to diminish. In two days the milk was quite watery and no longer gave a rich cream when collected. In ten it had almost ceased running from the left breast. The right, although much better, continued for some weeks longer to discharge a thin watery milk. At the end of one month's strapping both breasts were quite small and flaccid, instead of being hot, swollen, and turgid. Her general health so improved that within a fortnight she menstruated for the first time since her confinement, and rapidly gained flesh and strength.

The case is a remarkable one for the long period the breasts continued their full functional activity after the baby had been weaned. This period was fully six months when she came under my observation, and the breasts continued discharging the same large quantity of milk, rich in its natural constituents, and not a thin watery fluid, till really firm pressure was applied. Then in the course of a few days all was changed. That the cause of this enormous secretion was a local hyperæmia is made probable by the fact that it was so quickly

controlled by simple local compression. The cause of that hyperæmia is rather more difficult to explain. Oftentimes the uterus in such cases seems indirectly to be the cause producing a disturbance of healthy action, probably by means of the vaso-motor part of the nervous system.

Tumour of perinæum.

May 1879. A man, æt. 67, came to the out-patient room in the condition very fairly represented in the adjoining woodcut, which was executed from a photograph. A large tumour hung

Fig. 3.



pendulously behind the scrotum, attached by a small and narrow pedicle to the perinæum. It was first noticed five or six years ago; and had gradually increased in size up to the present time. It is an extremely good instance of the so-called "fibro-cellular tumour," "molluscum fibrosum," "soft fibrous" or "connective-tissue tumour," "cutis pendula,' &c. Such a variety of names is perplexing, and can only be

accounted for on the supposition that some doubt has at times existed as to their exact nature. This tumour was covered by thin, exceedingly white, and freely removable skin. Its consistence varied considerably in different parts; some nodules could be felt to be very hard and fibrous in character, indeed, almost as hard and resistant as cartilage, whilst the rest and chief part of the swelling was succulent, soft, and doughy. The pedicle was so narrow that by pushing the tumour forwards the fingers could be made to meet behind, with merely the two layers of skin intervening. These tumours are generally described as having their seat in the scrotum. I believe that they are much more frequently situated behind the scrotum, as in this case. If they were seated in the corium and subcutaneous tissues of the *scrotum*, we should almost expect to find involuntary muscular fibres occasionally mixed with the growth, but such is not the case. The only other instances that I have met with of large pendulous fibro-cellular tumours in this region have always been attached by a well-marked pedicle to the tissue behind the scrotum. Here the tissues are exceedingly loose and not endowed with such contractile power as the tissues immediately covering the testicles. Such tumours have also been described as hanging from the neighbourhood of the groin, and from the fold between the scrotum and the thigh.

This patient has, in addition to his tumour, a hydrocele of the tunica vaginalis on the right, and a commencing inguinal hernia on the left. The hydrocele and hernia had only appeared within the last few months, and it was for these he sought advice.

Multiple fatty tumours.

Elizabeth S—, æt. 43, married, applied at the out-patient room for some "lumps" that had been forming on both forearms for about three months. They caused her no pain or inconvenience, but she was seriously alarmed at the possibility of their appearing all over her body. On examination, numerous fatty tumours were found on both flexor and extensor surfaces of her forearms. Small, flat, and subcutaneous, they presented each the symptoms characteristic of such a growth. Although there did not appear to me to be any doubt about

the matter, I excised one for the satisfaction of the patient and those who saw her. It was an ordinary fatty tumour!

The remarkable feature in this case was the symmetrical arrangement which they presented. It is not rare to see numerous fatty tumours on the trunk, and especially on the back and shoulders, but the forearm is not a favourite place, and the grouping of these tumours in such a symmetrical manner must be an extremely rare occurrence. Oddly enough, within a few months another patient presented herself with the same peculiar appearance.

Emma T—, æt. 48, married, had noticed for twelve months some small lumps on her forearms, which had lately increased rapidly in number. Both forearms were here also sprinkled with numerous fatty tumours, varying in size from a pea to a walnut. She had also a larger fatty tumour on her back. In consistence they felt like the ordinary fatty tumour. The skin dimpled over them and the larger ones presented distinct lobulation. Here also the symmetrical arrangement was very remarkable. There was no constitutional disease in either case to indicate a cause, and there was no tendency to general obesity. One can no more account for their arrangement in this peculiar manner than one can account for the presence of the ordinary solitary growth of the same nature.

Martin's bandage.

In last year's 'Hospital Reports' I related the experience that I had obtained in the treatment of ulcers, varicose veins, &c., by Martin's bandage. Continued experience with this bandage in the out-patient room has resulted in increasing confidence in its efficacy. That ulcers, as a rule, rapidly heal under its continued use there can be no doubt. The "burning, itching, and irritation" that is felt by many patients for some time after the bandage is taken off, subsides generally with the prolonged use of the bandage. When these patients are being treated for ulcers there is not generally any difficulty in persuading them to continue with the bandage, but it is different with those who are suffering only from varicose veins. They have not suffered any pain before on assuming the recum-

bent position, and it is then chiefly that they suffer pain with its bandage. Some patients complain bitterly that on taking off the bandage to go to bed they are kept awake for nearly an hour by the burning and itching pain in the leg. Those that have been persuaded to persevere have generally in a few weeks overcome this annoyance. The old epithelium has by that time been shed and a new one taken its place, more tolerant than its predecessor.

The application of an ordinary calico or linen bandage beneath the rubber one will also materially relieve some cases of their pain, and when the elastic bandage is applied over the knee with any degree of tightness a calico or linen bandage beneath prevents the excoriation so frequently caused by the creasing of the rubber behind the joint. I have also found that lint interposed between the bandage and an ulcer is generally an advantage rather than the reverse, which is contrary to what we were first led to expect by Dr. Martin. And in some cases where the ulcer has remained unhealed, even with the continued application of the bandage for six to eight weeks, I have found very great advantage from different lotions, applied sometimes only at night after the removal of the bandage, at other times by means of lint placed beneath the bandage during the day. The treatment of joints by the rubber bandage has been highly satisfactory. Strapping so soon becomes loose and has to be frequently renewed, especially where any movement is allowed, that one naturally hails with delight a bandage that keeps up elastic pressure, and can be applied and reapplied by the patient himself. For slight affections of the knee in wealthier people the elastic knee-cap will still be worn, as it causes less discomfort and annoyance, and can, of course, be replaced by a new one as soon as the old one becomes loose.

ON THE SURGICAL CASES

IN WHICH

LISTER'S PLAN OF TREATING WOUNDS

IS

PREFERABLE TO ANY OTHER METHOD OF DRESSING.

By JAMES F. WEST, F.R.C.S.,
SENIOR SURGEON TO THE QUEEN'S HOSPITAL, BIRMINGHAM, AND LATE PRESIDENT OF THE MIDLAND MEDICAL SOCIETY.

My object in the remarks I have to make is to show that there are certain special surgical cases in which Lister's plan is, in my opinion, preferable to all others. I do not say it is the only way in which wounds may be successfully treated, but I wish to show that its practice enables us to undertake certain operations that we dared not formerly perform, and that we may do them with a far greater prospect of success than with any other known mode of after-treatment.

It is a somewhat singular coincidence that on this very evening the subject of antiseptic surgery is being discussed by the Metropolitan Counties Branch of the British Medical Association at St. Thomas's Hospital; it shows the wide interest that is taken in this subject, an interest which I am sure the members of the Midland Medical Society feel as deeply as their confrères in London.

I do not propose to occupy your time with a general discus-

[1] A paper read before the Midland Medical Society, December 3rd, 1879.

sion of the question: "Is antiseptic treatment, as proposed by Lister, the best method of treating wounds, simple, incised, or lacerated," although on that point my own mind is fully made up. We all of us know that under the crudest, or, in fact, under no dressing, some wounds will heal. Poisonous fluids, as fetid pus or slough, *may* remain in contact with wounds for a long time without producing evil effects, but now and then, and in crowded hospitals not infrequently, septicæmia occurs, especially if the patient be unhealthy, or when reparative action is delayed either by accident or violence.

One of the greatest compliments ever paid to the utility of the antiseptic method by an eminent modern surgeon is to be found in some remarks by Mr. Cooper Forster in his "Surgical Clinical Records," published in the 'Guy's Hospital Reports,' vol. xviii, p. 102, 1873, where he says:—"But yet, though nothing definite can be fixed upon in its favour, I think if I should happen to be the subject of a compound fracture I should like my case treated by Mr. Lister's plan." What could the most ardent admirer of antiseptic surgery wish for more than such testimony as this, and from such a source?

As the favorable opinion I have formed of antiseptic treatment has, however, been controverted by Mr. Savory, and his views are shared by some other surgeons of distinction, I must say a few words in answer to some of his objections. I submit that there are several fallacies in Mr. Savory's address in the Section of Surgery, read at Cork, in opposition to antiseptics. Mr. Savory admits that there are agents of putrefaction, and that they abound in air (*germs*) but he believes that antisepticity may be obtained by other means than Lister's method. This question to my mind may be thus answered: It is better obtained in Lister's way than by any that Mr. Savory has suggested. Mr. Savory's plan of dressing, which I give below, is merely a modified form of Listerism; in fact, he admits that it is the same in principle, though it is different in practice.

Mr. Savory recommends "free ablution with clean water as among the safest, best, and simplest of antiseptics." Why, then, does he say that at St. Bartholomew's antiseptics of various kinds are freely used? "He uses carbolised catgut ligatures, wire sutures, dresses wounds with olive oil mixed with carbolic acid, 1—50, adopts cotton wool to exercise pressure equably,

drains by position, washes from the first with tepid water, perhaps containing permanganate of potash in form of Condy's fluid, or other potent antiseptics of the least irritating kind, and if there is tension uses a bread-and-water poultice." Why is there this need of carbolic acid and Condy's fluid if pure water and poultices are so good? Mr. Savory admits that a carbolised spray is better than a "pestilential atmosphere," and he well may do so, for is it not true that ovariotomy was very fatal at St. Bartholomew's until antiseptic treatment was used, and that since then the results have been very favorable? Mr. Savory says that Lister's dressing is not favorable to union by first intention. He certainly may have found it so, but that, I must say, is contrary to my experience. Again, Mr. Savory declaims against the use of drainage tubes; but are drainage tubes valueless, or even injurious, as Mr. Savory suggests? I certainly believe them to be most valuable and necessary, and most surgeons in the present day regard the invention of Chassaignac as one of the greatest additions to our modern armamentarium. Again, in respect of another of Mr. Savory's favourite remedies—the bread poultice. Is there not risk of promoting putrefaction by the use of poultices and water dressings? I think that both these applications have been very generally given up as of no real value, even if not productive in many cases of positive harm, and Mr. Savory says antiseptic surgery ought to mean "cleanliness, not only in the common, but in the surgical sense, which means the prevention or removal, or destruction of all matter which may prove poisonous."

If Listerism has done nothing else it has secured an amount of attention that was never paid before to cleanliness; but it has done more, in that it has aimed at not mere prevention or removal of septic material, but at the destruction of it, by producing in the neighbourhood of all wounds an aseptic atmosphere. The chief practical objection raised by Mr. Savory is that Mr. Lister's assertions as to the superiority of this treatment are not borne out by facts, and he quotes Mr. Bryant's opinion:— "That the publication of isolated cases, however good, proves nothing, whereas the withholding of the whole suggests much." But he will scarcely be able to doubt the advantages of Mr. Lister's practice since the appearance of Mr. Chiene's paper in

the 'British Medical Journal' of November 29th, 1879.[1] It Mr. Savory had given himself the trouble to examine the recent writings of surgeons in this country and in Germany on this subject he would have found, in addition to *isolated cases,* there were statistics of various hospitals showing the relative mortality under the old system and under the antiseptic system, and he would have found that many men who were once as sceptical of the value of antiseptic treatment as he himself is, have had from practical personal experience ample reason to justify them in testifying to the superiority of it over every other method of treating wounds. I have gone through the medical journals of 1878 and 1879, and I find strong evidence on this point from Professors Nussbaum and Thiersch, from Mr. Barwell, of Charing Cross Hospital, and from the statistics of the Newcastle-on-Tyne and Glasgow Infirmaries.

Antiseptic dressing after Lister's method having been practised by Dr. J. Nussbaum, Professor of Clinical Surgery at Munich, the following results ensued. Previous to 1875 the antiseptic system had not been tried, though carbolic acid, chlorine water, and other disinfectants had been freely used. And this was the result:—"Pyæmia struck down all compound fractures, and nearly all amputations. More than one physician asked if it was right to operate in such an infected hospital. In 1872 hospital gangrene was added to pyæmia, and became more and more destructive until, in 1874, 80 per cent. of the cases of wounds or injuries were attacked by it. Erysipelas was met with in almost every bed. Every patient had one or two attacks of hospital gastritis." Not one of his students had seen in the hospital an instance of union by first intention. The rare cases of amputation that were not fatal remained in the hospital from 140 to 180 days; they had two or three attacks of erysipelas, and were so weakened that they could not for a long time leave their bed. In 1873, without any change in the wards, the nursing, the diet, or the surroundings, Lister's antiseptic treatment was introduced, and "every

[1] Mr. W. Watson Chiene, Surgical Registrar of King's College Hospital, in 'Brit. Med. Journ.' for November 29th, 1879, gives a statistical report of *all* operations performed on healthy joints (twenty in number) in hospital practice by Mr. Lister, from September, 1871, to the present time, together with such accidental wounds of joints (twelve cases) as occurred during the same period.

dressing, small or great, was made strictly in accordance with Lister's rules." From that day there has not been "one case of hospital gangrene, of pyæmia, or of erysipelas; in a word, the hospital has been transformed. A case of amputation never stays longer than thirty or forty days in the ward, and some have been discharged completely cured and robust at the end of fourteen days, having been dressed only four times." The mean duration of the stay of patients in the hospital has not been sensibly lessened, because severe injuries and compound fractures, which formerly died in from eight to ten days, now require from eighty to one hundred days for their recovery. The rate of mortality has fallen one half, and those on the post-mortem table are mostly suicides, men crushed by a fall, the old, the phthisical, and the cancerous. Thanks to antiseptic precautions, operations are now undertaken without danger which one would not have dared to do with the open dressing; for instance, incision into joints, and Ogston's operation for genu valgum."

Prof. Thiersch, of Leipsig, in his paper on the "Clinical Results of the Lister Treatment of Wounds," published in 2nd series of 'German Clinical Lectures,' published by the New Sydenham Society, 1877, says :—"I regard Lister's treatment of wounds as a therapeutic experiment which has proved successful."

He also gives a table of all the cases in the surgical wards of the Leipsig Hospital from April 1st, 1874, to January 31st., 1875, with full details of the results, *e.g.*:

		Treated by		Treated by
1st division, Apr. 1 to Sept. 30, 1874	45,	Salicylic acid	45,	Carbolic acid.
2nd „ Oct. 1, 1874, to Jan. 31, 1875	64,	„	6,	„

"On the ground of the experiences given above we may, I think, adopt the view of those who see in the Lister treatment of wounds, a pretty certain defence against pyæmic infection."

Mr. Barwell, of the Charing Cross Hospital, gave in 'Lancet, March 2nd, 1878, statistics of his antiseptic operations in 1877, including 8 amputations, 4 joint resections, 9 osteotomies, in all 33 cases, with 3 deaths; 1 from tubercular meningitis, 1 from some abdominal malady after he had left the hospital, and 1 from anæsthesia, so that, he says, "if death from extraneous causes be excluded my mortality is absolutely *nil.* It gives to surgery the highest possible safety, and to patients the greatest

possible comfort." The good results of Lister's treatment are further displayed in the following comparative statistics of amputation at the Newcastle Infirmary by Mr. Hobson, house-surgeon :

	Major amputations.	Deaths.		Antiseptic years. Major amputations.	Deaths.
1873	27	16 (59·2 per cent.)	1876	26	6 (23· per cent.)
1874	41	19 (46·3 „)	1877	32	5 (15·6 „)
1875	30	14 (46·6 „)	1878	50	2 (4· „)
	98	49 (50· „)		108	13 (12· „)

Dr. Thomas gives also statistics of all amputations at Glasgow Infirmary during 1877, which shows a mortality of 3·22, while at Manchester Infirmary cases treated non-Listerian by Mr. Bradley were 11·42 per cent.

I now proceed to mention certain special surgical cases, either in my own practice or in that of other surgeons, which illustrate my proposition that with Lister's treatment there are operations which can now be done, and injuries which can be treated with safety, which we dared not formerly undertake or which, at any rate, could but rarely be brought to a successful issue. The special cases which I shall select for illustrating the advantages of Liston's antiseptic dressing are—1. Osteotomy. 2. Herniotomy. 3. Ovariotomy. 4. Joint resections. 5. Wounds of joints. 6. Abscesses (large and chronic).

1. Osteotomy, which was first performed with antiseptic precautions by Prof. Volkmann of Halle, in 1875, and of which an excellent example is reported by my friend, Mr. Furneaux Jordan, in the 'Lancet' of May 4th, 1878, in which he operated on both limbs for genu valgum with the best results. In a few brief comments on the case, he makes in conclusion the following pregnant remark: "What would have been the result without antiseptic precautions?"

On March 6th, 1878, I brought before this Society, Herbert N—, æt. 18, from whose femur a broad-based exostosis, as large as an orange, had been removed by me with a chisel and mallet, and in whom, after seven days' of antiseptic treatment, the line of incision was perfectly healed, and who left the hospital cured without ever having his temperature over 100°.

This case was reported in the 'British Medical Journal,' 1878, as was also that of a man, aged twenty-one, who had an exostosis of the ulna, the size of a small apple, which prevented pronation and supination, which I also removed with the chisel and mallet. The antiseptic treatment was discontinued after fourteen days, the parts being perfectly sound, and the temperature and pulse having remained normal throughout.

I can only say in respect of these cases that I could not have expected so good a result, and in so short a space of time, had I not operated with antiseptic precautions.

The brilliant results obtained by Dr. McEwen, of Glasgow, by antiseptic treatment are specially worthy of notice.

In the 'Lancet' of March 30th, 1878, Dr. McEwen reports four cases and five operations, and in the 'Lancet' of December 28th, 1878, he gives an account of forty cases and fifty operations for genu valgum, genu varum, and other osseous deformities, "without a single fatal case;" and, in addition, ten by his colleagues "without a single untoward result." "With two exceptions, the temperature never rose above 100·8°, and generally averaged about 100° during the first week."

The subject of subcutaneous osteotomy, with antiseptic precautions, is thus alluded to by Mr. Robert William Parker:— "We owe an especial acknowledgment to Dr. A. Ogston, of Aberdeen, for having first applied this knowledge to the purposes of surgery; for, although other operations had from time to time been proposed and undertaken, none were comparable to Ogston's at the time when it was first published. In recording this we must not forget to mention the obligation we owe to Lister; without such a protection no surgeon would have ventured thus deliberately to open the largest joint in the body."

The evidence above given, which I might extend almost indefinitely, is, to my thinking, sufficient to show that osteotomy, which formerly was a highly dangerous operation, has, with antiseptic precautions, become one of the safest and most satisfactory operations in surgery.

2. *Herniotomy.*—In no operation are the beneficial effects of antiseptic treatment more fully realised than in herniotomy.

At the Manchester meeting of the British Medical Association in August, 1877, I read a paper on this subject, in which I quoted my experience of the past four months, five cases occurring consecutively, and all successful.[1] Since then I have repeatedly performed herniotomy, and wherever it was possible I have used antiseptic precautions. Sometimes, owing to the cases being in private practice, or at a distance in the country, I have not had the requisite materials at hand, and have been obliged to operate and treat the cases in the ordinary manner. My results without the antiseptic treatment have been nothing like so favorable as those which I have obtained in a crowded hospital when using Lister's dressing.

3. *Ovariotomy.*—This operation has, in the hands of Spencer Wells, Keith, and Knowsley Thornton, become much safer than it formerly was since those surgeons have employed antiseptic treatment. Mr. Spencer Wells had in his sixth series of one hundred cases twenty-nine deaths, and in his seventh and eighth series only twenty four. In the 'Lancet,' of July 27th, 1878, he says he has used Lister's plan in twenty-two cases. "Fever is the exception, whereas formerly it was the rule. Experience daily accumulating encourages the hope and strengthens the belief that it will prove of real and very great value."

My own experience of antiseptic ovariotomy, though limited, is entirely in its favour, and my colleague, Mr. John Clay, the eminent gynæcologist, always employs antiseptic treatment. A case showing its good results was reported by him in the 'Lancet' of November 16th, 1878. Dr. Keith, of Edinburgh ('Brit. Med. Jour.,' October 19th, 1878), says: "Since 1876 every operation has been performed, with all Mr. Lister's care, under the carbolic-acid cloud, and I shall never go back to the old way."

Without antiseptics his mortality was 1 in 7.
With ,, ,, ,, 1 in 21.
With ,, he had 49 operations in all, and only two deaths.

"Now the right way is got, and surgeons like Mr. Callender and our own Mr. Spence may take my word for it that, if they

[1] 'Lancet,' August 18th, 1877.

have reached already near perfection in their work, they will, by carrying out Lister's antiseptic principles, get still nearer it, and that too with greater comfort to their patients, and with less anxiety and trouble to themselves."

In a paper on the "Antiseptic Method in Relation to Drainage of the Peritoneum in Abdominal Surgery" ('Lancet,' September 20th and 27th, 1879), Mr. Knowsley Thornton says, "I have not lost a single uncomplicated case since I began antiseptic ovariotomy, and I believe a simple antiseptic ovariotomy is a safer operation than a cyst tapping, and I am much inclined to think an antiseptic exploratory incision is a safer operation than an exploratory tapping. I have now performed—

Antiseptic	ovariotomy	90 times.
„	abdominal section for the removal of abdominal or uterine tumours	6 „
„	exploratory incision without removal of tumour . . .	6 „
		102

Drainage was used in eleven cases and three deaths occurred.

In fresh cases and with a careful adherence to the principles of Lister, or in other words, with aseptic cases and proper antiseptic precautions, I believe the need of drainage has passed away, at any rate cases requiring it must be very exceptional."

Further testimony on this point is given by Dr. Savage, of Birmingham, in his valuable paper on the "Treatment of Uterine Myoma by Abdominal Section." Dr. Savage adds, "Six operations with five recoveries, and all were done antiseptically." And he remarks, "It need scarcely be said that these operations were performed antiseptically, and as far as possible with that care and attention to detail which have been found not only to contribute, but to be essential to success in ovariotomy and peritoneal surgery generally."

4. *Excision of the larger joints* may now be performed with far less risk than before the days of Listerism. I might quote scores of cases which illustrate the value of antiseptic treatment in such operations. I will, however, only refer to a few in my

own practice which have been published, and to some which I have had the opportunity of bringing before this Society.

In the Lancet, July 20th, 1878, I reported a case of resection of the knee-joint, in a girl, æt. 26, which did admirably, and in the same journal, December 12th, 1877, I brought forward a primary resection of the elbow-joint for injury in a girl, æt. 9, when the bones of the forearm and the humerus were comminuted, and the brachial artery exposed for two inches, where a good useful limb was preserved; both of these cases had no febrile excitement or bad symptoms of any kind.

In resection of the tarsal bones for old and neglected talipes varus I have found antiseptic treatment very useful, as in a case (a girl, æt. 23), whose case I brought before the Bath meeting of the British Medical Association in 1878, and which was reported in the 'British Medical Journal' of November 2nd, 1878.

In resection of the ankle- and wrist-joints, I have also found the greatest benefit from pursuing Lister's plan of treatment. Again, in excision of loose cartilages from the knee-joint, or of large chronic bursal tumours, either from the front of the patella, or the insertion of the semi-membranosus, where free incision or injection with iodine might be somewhat risky, antiseptic treatment deprives the act of entire removal of all danger. Several cases of that sort I brought before this Society on January 22nd, 1879, and you saw the good results which had been obtained.

5. *In wounds of joints* the value of antiseptic treatment can scarcely be exaggerated. Punctured or incised wounds of the knee may, with instant occlusion and perfect rest, have a favorable issue, but in lacerated and contused wounds, where formerly immediate amputation would have been the rule, joints may now be saved in the great majority of instances.

I might bring forward many cases in support of this view, but I will content myself with narrating the case of a boy, æt. 14, who sustained a lacerated wound of the knee-joint by his leg being caught between some cog-wheels. The wound was four inches long and two broad, so that two fingers could readily be introduced into the joint. With Lister's treatment the boy made a good recovery, the temperature never rising above 100°. This case is reported in the 'Lancet,' December 22nd, 1877.

6. *In the treatment of large chronic abscesses,* Lister's dressing is most useful. One always opened a psoas or lumbar abscess with dread in past years, but now they can be treated by means of free incision, drainage, and antiseptic dressing, with perfect immunity from danger. No constitutional excitement follows the opening of the cavity, and pyæmia or septicæmia are never seen as the result of such treatment.

Its applicability to the treatment of empyema is now become general. I have had several cases where I have freely opened the chest and evacuated pus in large quantity without any elevation of temperature or other evidence of constitutional disturbance.

Dr. Elliot, physician to the Bristol General Hospital, after reporting three cases in the 'Lancet' of October 18th, 1879, says, "The employment of the carbolic spray at the time of operation and when the dressings are removed, decidedly lessens the risk of septicæmia, pyæmia, &c."

I shall, in conclusion, quote Mr. Lund's opinion of the value of the antiseptic treatment in these cases of large abscess which I find thus expressed in his 'Five Years Surgical Work at the Manchester Royal Infirmary.' "All the more recent ones have been opened in a spray or atmosphere of antiseptic vapour; now we open a large abscess on Mr. Lister's principle with the greatest confidence, and the firm conviction that the operation will be followed by the minimum amount of constitutional disturbance."

In these views I heartily concur, and I trust I have now adduced sufficient proofs of the utility of antiseptic treatment in a variety of the gravest and most important surgical injuries and operations as to render its adoption general in this district by the members of the Midland Medical Society.

ON HYSTERIA AND HYSTERO-EPILEPSY

By WILLIAM H. STONE, M.B., F.R.C.P.

Of the many vaguely sonorous titles employed in medicine probably none has been so far removed from its original signification as that which forms the heading of the present memoir. Etymologically it is definitely connected with ὕστερα, the womb, and it must be regarded as intimately associated with the chief member of the female generative organs. But it also obviously connotes the idea of nervous disturbance, of functional as opposed to organic disorder, and of simulation or of deceptive mimetic resemblance between its manifestations and others symptomatic of grave physical lesions. It is manifestly from the predominance of the latter, which may be regarded as second intentions of the logical term, over the first and more simple definition, that the change of signification has in a great measure come about. The modified meaning of the term is also in some degree due to the tendency to metaphor and metathesis, which is a besetting sin of medical terminology. Hence we see writers speaking of "male hysteria," by which can only be indicated a mobile, unstable, emotional constitution of mind in man, which is figuratively supposed to resemble that found in females whose sexual system, by its derangement, has caused a similar mental condition. It is, indeed, in the direction of nervous and psychical disease that the ambiguity of the phrase hysteria is the most noticeable. In both the latter cases we are dealing with morbid conditions to which, at present, we

are unable to attach any pathological lesions, and it is often really difficult, in particular instances, to say where hysteria terminates and mental derangement begins. This difficulty is increased by the twofold fact that females, both at the onset and towards the cessation of their menstruating epoch, are really liable to grave disturbances of their nervous equilibrium, which closely border on, if they do not actually pass into, insanity, and by the correlative proposition that in females an early and prominent symptom of incipient insanity is irregularity and even cessation of the catamenial function. It is probable, as will presently be shown, that other nervous disorders, such as epilepsy and also chorea, may be attended with aberrations of mind, which may either be referred to the category of hysteria or to that of lunacy. The latter word, indeed, of itself suggests a vague but anciently observed connection between the lunar period as influencing the reason and that which is well proved to exist between the moon's period and the recurrence of menstruation, and even of pregnancy itself.

The older view of hysteria freely acknowledges its ambiguity, and would regard it with suspicion, not dissimilar to that which logicians of Whately's school accredited the imagination. Just as the eminent writer above named describes imagination as a "forward intrusive faculty," to be followed with extreme caution, so the medical man of the past half century hesitated, except under urgent necessity, to define any malady as hysterical; and even then was fully aware that he was passing from the region of demonstration into that of hypothesis; from solid pathological deduction to statements more verbal than real; from what could be affirmed with a contented conscience to what was in the highest degree controvertible.

But just as the present epoch has reversed the honest statement of Newton, "Hypotheses non fingo," and has recognised the scientific value of imagination as a guide to research, so a theory has of late come to the front, which boldly throws aside the disabilities and untrustworthiness with which hysteria as a living entity had up to now been accredited, and accepts it for a real thing, a neurosis of very varied manifestations indeed, but possessing some central point of unison, some pathological lesion, which has not as yet been demonstrated by the scalpel of the anatomist, or by the all but omnipotent microscope. No

doubt, in this respect, hysteria only shares with many other recognised diseases, especially those of the cerebro-spinal and nervous system generally, its insusceptibility to pathological classification. Nor is it logically accurate to deny existence to morbid states, such as epilepsy, mania, and neuralgia, which, though marked by clear and definite symptoms during life, have not hitherto been associated with a post-mortem lesion. The value of symptoms should be co-equal and co-ordinate with that of physical signs, even if in many cases they do not hold the superiority for delicacy. In the absence, however, of a test condition, the main difficulty is to define how far the name is applicable, what cases may be justifiably included under the designation, and what others should be relegated to kindred and affiliated categories.

According to the modern school, of which Charcot, Paul Richer, and others, are the hierarchs, hysteria may have every degree, from a mere mobility of character up to dementia, general paralysis, and epilepsy, with the latter of which, as in the title of the present remarks, it is most intimately associated. A recent writer, Mr. Charles Richet, so well indicates the general bearings of the malady[1] as to deserve quotation. Speaking of the seclusion of hysterical patients in the Saltpêtrière Hospital at Paris, which is at once an almshouse for females and a sort of mitigated lunatic asylum, he says, "Some astonishment may be indeed excited by the fact that hysterical females are thus confined. One is not accustomed to consider hysteria as a serious disease, or as one justifying seclusion. In this view there is doubtless much truth, for the disease has every degree of severity. Just as some burns are so superficial as to be hardly felt, and others so extensive and so deep as to produce rapid death; just as there are insignificant fevers and fevers quickly fatal, so there are slight hysterias, almost imperceptible, a disposition of the organism rather than a disease, and beside them serious hysterias, so serious as to run into dementia, general paralysis, and epilepsy. Slight hysteria is found everywhere; at the Salpêtrière there is none but what is serious."

It will be seen that this statement at once boldly begs the question, by giving a definition of hysteria far more compre-

[1] 'Revue des Deux Mondes,' 15 Janvier, 1880.

hensive than that formerly adopted; it also indicates the remarkable fact that the authorities, who in France regulate the freedom of the subject, have no hesitation in placing patients standing in this doubtful position as regards the possession of a sound mind, under medical restraint.

The writer of the present memoir, in a recent visit to the institution named, was forcibly struck by the observation that many of the patients brought under his notice would most infallibly be liberated by the Lunacy Commissioners in this country, and that their incarceration would raise a popular clamour. It is a question which may be fairly argued whether they are better off as thus provided for, or, as with us, enjoying a useless and precarious liberty. They seemed at any rate, though young, vigorous, and sometimes prepossessing in appearance, to exhibit no repugnance to their condition, and to make no objection to demonstrations of cutaneous sensibility which must at times have involved considerable pain. Very little clue could on the spot be obtained as to their social condition, though it appears from M. Charcot's published works that some at least belong to a class recognised and tolerated indeed by French jurisprudence, but subjected to stringent, and even aggressive, though perhaps necessary, police supervision. It may here be noted in passing, that an exactly parallel type is rare, if not wholly wanting, in London. The writer, who has kept rough notes of cases seen by him for about twenty-five years, in various hospitals and dispensaries, estimates the average at about three per diem, or at least 1000 per annum, making about 25,000 in all. Of these, at least 12,000 would be females; perhaps rather more than less. His memory does not recall half a dozen in all which could be compared with the roomfull of giddy, fluttering, gossiping girls to which he was introduced. This seems to have struck the writer above quoted. "In Paris," he says, "and in the larger towns, where young women of the lower class and among the lesser housholders receive an education too good for their social condition, hysteria is very frequent. It is often very difficult for them to find the ideal husband of their dreams; marriage, moreover, is not a remedy for daily contemptible difficulties, and the narrow cares of housekeeping form an insufficient field for the vast aspirations of an ill-controlled imagination. Consequently, with a certain

class of girls and young women, who have only a slight predisposition to hysteria, misery, want, and grief, often cause its development. In one word, hysteria has a physiological cause, namely, heredity, and a social cause, in the falling short of reality from the imaginary world of dreams."

It is not difficult, from the premises above given, to arrive at a definition of the disease itself, if, indeed, disease it be. This has both its negative and positive side. Negatively, hysteria is separated from madness by the clear state of the intellect, the accuracy of memory, and the brilliancy of the imagination. Positively, it is characterised by emotionalism, by excessive mobility and sensitiveness of character, and by the total absence of will. In the beautiful conciseness of the French language "*Sentir, penser, ne pas vouloir.*" But with these elements is intimately blended that of excessive self-love, and egotism. "Self-love" says, M. Richet "is always extremely developed, so much so that the lightest banter becomes a cruel offence, resented with indignation, and against which tears are an insufficient protest. Everything becomes the subject of melodrama; existence itself, a theatrical representation. The simple, easy regularity of life, with its daily to and fro is transformed by the hysterical patient into a series of solemn events suited to dramatic treatment. Terror, jealousy, joy, anger, love, all are exaggerated out of all proportion to the moderate and controllable feelings which should be experienced." With this goes a symptom which forms the great impediment to investigation of this Protean malady, namely, the want of truthfulness; and for two reasons. Firstly, because it is difficult to know exactly what the over-excited and morbidly sensitive sufferer really does feel under given circumstances: secondly, because all sentiment of truthfulness has been cast to the winds. The hysterical patient lies audaciously for the very love of falsehood and deception. Nothing can bring more prominently forward the fact that speaking the truth is an acquirement of civilisation, a compact artificially founded among men for mutual benefit, and even now only fully recognised among the more cultivated races of the West, than the circumstantial, cool, and purposeless falsehoods, in which such patients delight to indulge. It is not even necessary to suppose a motive of personal advantage for their fabrications, for it

has been seen, in the case of the fasting girl, that they will persist in a lie even unto death, with as much determination and apparent courage as the martyr in testifying to the truth.

Attention has also been drawn of late to what may be termed the interchangeableness of different members of the great family of neuroses, as, for instance, that an epileptic father may have one son an idiot, another a lunatic, and a daughter hysterical. No doubt there is much truth in such a view, nor is there any reason why a sensitive and mobile mental diathesis should not be inherited as distinctly as the tubercular, rheumatic, gouty, or nephritic tendency. It has been ably argued by Dr. Carpenter[1] "that in many exercises of animal intelligence we may trace the manifestations of a hereditary transmission of aptitudes for particular kinds of mental action which have been originally acquired by habit, and that facts justify the belief that the like hereditary transmission of acquired aptitudes may take place in man, and that, in accordance with the far wider range of his faculties, it may become the means of a far higher exaltation of them." It is probable that the same law holds good for acquired diathesis, and may be extensible from physiology to pathology. Indeed, a classification of functional neuroses may be framed somewhat after the following order, each heading of which can be fully confirmed by illustrative cases :— (1) In the first and commonest instance, the effect of sudden or chronic over-strain falls on the intellect, and causes the ordinary symptoms of insanity ; or (2) it may lay hold of the emotions and will, giving rise to the pseudomorphic phenomena of hysteria ; or (3) the vasomotor system of nerves may be overwhelmed, in which case we have exophthalmic goitre and its attendant circulatory derangement ; it may (4) fasten on the motor tract of the spinal cord, and generate chorea, which will be shown presently to come close on some forms of mental derangement ; or (5) on the basic ganglia of the brain, when epilepsy is the result ; or, lastly (6), on the inhibitory nervous apparatus of the heart, causing a peculiar but easily distinguishable form of palpitation, of which two cases have lately come before the writer, and which deserve more detailed consideration.

With the first heading (1) of insanity it is not here intended

[1] 'Mental Physiology,' p. 104.

to deal at length. One case, however, which has recently been in the Queen's Ward, is so remarkable as to deserve quotation. It is extremely difficult to assign an exact nosological position, for whereas it in many respects resembles a case of mental derangement, it presented throughout marked evidence of mimesis and involuntary simulation, which seem to be elements in the ordinary definition of hysteria.

Case 1.—E. F. æt. 20, female. Had always been delicate, but was in her usual health until about nine months previously, when she was noticed to be pale, languid, and inclined to cough. Four months before admission she spat some frothy blood in the mornings, lost her appetite, and slept badly. For six weeks had suffered from "fainting fits" lasting from half an hour to an hour each, and recurring two or three times a week; for ten days had been strange in manner, showing confusion as to the day of the week and as to the time of taking her medicine. No definite delusions were known of, and she had shown no violence or indecency.

On admission, May 1st, 1880, she was of pallid, nervous, restless aspect, but not insane. She lay constantly on her back with rigid muscles, answered questions sluggishly and pettishly, but without any incoherence or definite delusion. When watched she placed her hand to her mouth and kept making a nervous double-barking sound, somewhat between a cough and a hiccough, which ceased directly her attention was diverted or when she was alone. It was, however, difficult to fix her attention, and she dwelt vaguely upon something connected with her sister, which her friends declared to be entirely groundless, and which she herself never defined precisely.

The tongue was clean; bowels said to be regular. There was total retention of urine, after the passage of two ounces on the night of the 1st, until the night of the 3rd of May; then a little was voided into the bed. It contained a trace of albumen. The friends, when closely questioned, stated that during the last two or three menstrual periods she had been worse in general condition, but could not speak to any distinct evidences of insanity. She complained of pain, and showed tenderness over the right ovarian region, wincing on deep pressure, but denying afterwards that it hurt her. Compression over this region, by

means of a screw-tourniquet for abdominal aneurism, produced no definite result. She continued for some days to have an imbecile aspect, making absurd and irrelevant remarks, answering all remarks made round her bedside, crying and laughing without cause. She was acutely alive to all spoken about her, evidently understanding it, indeed, she seemed to take suggestions from what she heard ; for instance, the question of passing her excreta in bed having been mooted in her presence on the eleventh day after admission, she became dirty in her habits for a day or two, and then forgot all about it. She rambled during the night and frequently got out of bed, but was never violent. She got hold of the house-physicians' names and ages, talking sensibly at one time and foolishly at others. She liked to be listened to, and showed a decided histrionic tendency. She took food very badly, and never asked for it. The spasmodic hiccough ceased in a few days ; urination became voluntary and regular. At the end of a week she was taking food badly and unwillingly, making absurd remarks, and obviously watching for their effect on the hearer; she looked wild and demented, but slept soundly. On the tenth day many erythematous patches appeared over the head and neck without fever or raised temperature, indeed, this latter indication was unchanged throughout the illness. On this day she told a connected but imaginary tale of having lost the train at Forest Gate. On the 11th of May she was restless, getting out of bed frequently, and passing her evacuations in the bed as named above. The same thing occurred on the 17th also, after the question had been asked in her presence. She began, however, to take her food well and to improve in general health. She was discharged cured soon after, though still retaining the mobile, childish, emotional, and mimetic character she had shown throughout her illness. The whole narrative has some resemblance to cases frequently referred to by Charcot.

The second (2) is so various in its manifestations that it is difficult to bring forward a satisfactory instance. It will be admitted, however, that the appearance of functional paralysis, without assignable reason, brought about by a cause totally insufficient to account for the results observed, rapidly and inexplicably recovered from, reproduced on many occasions

without detriment to the general health or to the usefulness of the patient in ordinary society, may be legitimately adduced in evidence.

Case 2.—Elfrida C—, who died recently of bronchitis at an advanced age, had been subject ever since the age of twenty to a peculiar hysterical ailment. It originated in a severe fright. It appeared that she was playing in a country farmhouse with some young men, one of whom, proposing to kiss her, pursued her into a hayloft, through the trap door of which she fell in a sitting posture on to the stone floor of the stable beneath. No mechanical injury was done beyond some bruises, but she was found to have completely lost the power of phonation. She could only speak in a whisper, producing no laryngeal sound whatever. From this she after a time recovered, and it became obvious that the vocal chords were unharmed, as her voice was throughout life remarkably clear and strong, enabling her to perform all her duties in a large girls' school of which she was mistress. But whenever the cervical region of the spine was touched, however lightly, the voice instantly and entirely disappeared, usually for two or three days, and then as suddenly returned. She never showed any other signs of hysteria, and though she remained unmarried during life, she suffered from no disease or disorder of the catamenial function.

Not very dissimilar in causation is the following:

Case 3.—Miss L—, æt. 25, consulted me in 1875 for well-marked symptoms of exophthalmic goitre. She stated that she had for some months attended her mother through a long and ultimately fatal illness, during the course of which she had often felt a strong and almost irresistible tendency to hysterical seizures. These she resolutely restrained by an effort of the will, and succeeded in mastering them; but her general health suffering from the continual confinement, she began to suffer from cardiac palpitation, a sense of constriction in the throat, and syncopic attacks, not, however, running on to loss of consciousness.

On examination her condition was remarkable and characteristic. The eyeballs were extremely prominent, the face pale and anxious; on the slightest excitement she was obliged

to undo the top of her dress about the neck. On all my earlier visits I was able to observe a distinct throbbing and erection of the thyroid gland, which, beginning to increase at my appearance, enlarged forwards and outwards symmetrically on the two sides to more than the size of a man's fist. This process was accompanied by unendurable palpitation and a pulse which to the finger had the sensation named after the "water-hammer," and seemed to indicate extensive aortic valvular lesion with hypertrophy. The sphygmograph instantly dispelled the illusion, showing that the real wave was rapid and weak to a degree, producing a tracing which was little more than a granular line. On further inquiry she stated that though she had not distinctly noticed the erectile swelling in the neck, she had been obliged to alter her white linen collars to others several sizes larger since her illness. She improved very considerably with complete rest and the use of a combination of digitalis and belladonna, the immediate effects of which she herself noticed. Tonics of every kind, including iron and quinine, had been freely tried previously without effect, indeed, the former had decidedly made her worse. The cardiac action was free from any valvular murmur. There was, however, a loud double-bellows murmur audible over the thyroid during tumescence, and she was conscious of loud roaring noises in her ears at the time. There were no signs of disturbed menstruation or digestion, and the lungs were sound. I have recently heard that she remains in fair health, though not without occasional signs of the old malady.

The following case illustrates the combination of chorea with mental derangement of a maniacal character.

Case 4.—Annie N—, æt. 18, nurse. Admitted into Christian ward on August 19th, 1879.

It appeared that four months previously she had suffered from an attack of acute rheumatism, which confined her to bed for three weeks. Nothing serious, however, seems to have been noticed until six days before admission, when her mother observed twitching of her hands; they were worse on the following day. Two days before admission she became very restless, would not remain still, and wandered about the house. No fit, no vomiting. Catamenia regular. Some headache.

On admission she was flushed, restless; expression wild; moaning and screaming occasionally. The right arm and leg were affected with choreic movements. The tongue, however, was protruded steadily, and the muscles of the face were unaffected. She was said to have had no sleep for three nights. Pupils normal. Pulse 108. Temp. 102°. Heart's apex beating in fifth interspace, half an inch below and half an inch within the left nipple; her pulse forcible. A loud systolic murmur at the apex conducted towards the left axilla.

On the following day she was very violent all the evening, screaming loudly, trying to get out of bed, and to bite the nurses. There was some rheumatic swelling of the right wrist and metacarpus, which subsided in a few days, leaving apparent weakness of that side. Four days after admission she became violent about 9 p.m., screamed, struggled, and tried to bite; talking constantly to herself, but apparently in no pain. On the sixth day she had violent fits of weeping without any apparent cause, and began to take her food well. On the seventh day she was quiet; temp. 101·4°; a profuse perspiration. Systolic murmur loud and unchanged. No pericardial friction. The next day the urine had to be drawn off to the extent of thirty ounces by catheter; after this she slept. The chorea had disappeared, but the right hand seemed weak. She was obviously deranged mentally, but quiet, till the fifteenth day, when she became noisy, sleepless, and maniacal. This continued for three weeks. In the following week she refused food and struck her mother, whom she recognised, violently in the face. Measures were being taken for removing her to an asylum, when on the thirty-fourth day she suddenly recovered her reason, began to eat enormously (fourteen slices of bread-and-butter at a meal), and was well in a few days. She has since attended occasionally though in perfect health.

It is hardly necessary to insist on the well-proved connection between emotion and epilepsy. It is, however, perhaps deserving of notice that the intervening link between ordinary syncope and the more serious affection just named may be often traced, if especially sought for, as in—

Case 5.—E. W—, a musician, of singularly nervous and emotional character, even among a class generally so predis-

posed, consulted me about a fancied heart disease. On my proposing physical examination he fell into a state of terror, which ended in a severe fainting fit lasting over twenty minutes. From the first moment of complete unconsciousness clonic spasm of an epileptiform character manifested itself in both extremities, and in the muscles of the jaw and face, insomuch that the case might well have been mistaken for epilepsy itself. Recovery, however, was prompt and complete, no drowsiness or headache remained, nor has the subject ever had any further epileptiform symptoms.

The anæmia of the brain caused by temporary stoppage of the circulation must, as in Kussmaul and Tenner's experiments on animals, have been the sole cause of the motor spasm, and is doubtless the key to the causation of many similar attacks. The effect of overstrain on the inhibitory system of the heart's innervation furnishes cases not very uncommon, and which are often erroneously referred to hypothetical causes, such as adherent pericardium. Two such have recently come under the writer's personal observation, and are remarkable for the solitary and uncomplicated nature of the ailment, as well as for the complete recovery which attended the correct direction of therapeutical measures.

Case 6.—Philip C. T—, æt. 16, student. Always of nervous temperament, which has been aggravated of late by sitting up late at night, reading with a view to examination. About eight weeks before admission into St. Thomas's Hospital, he noticed a swelling in the thyroid region, and sudden, quick, irregular, violent beating of the heart, accompanied by malaise and anginose sensations.

On admission he was a tall, pale young man, of good nutrition, but delicate appearance. On the slightest emotion he flushed up over the whole scalp and shoulders, and began to suffer from such severe cardiac spasm as to clench his two hands firmly over that region, and to be unable to speak or to move. The heart's action at such times rose to 144 beats per minute, at other times being from 90 to 95. The sounds were ringing and metallic, but perfectly regular, and unaccom-

panied by any murmur or other abnormal sound whatever. There was no tendency to syncope, the lungs were normal, the tongue clean, the appetite good, the bowels regular, sleep sound. No albumen in urine; temperature normal. Never had rheumatism or any blood disease; family history good. The thyroid gland was not enlarged nor erectile, the eyes were not unusually prominent. During the attacks he presented exactly the appearance of a person to whom nitrite of amyl in a full dose had been administered.

I looked upon it as a pure case of functional paresis of the cardiac inhibitory apparatus, and accordingly ordered the use of a continued current from fifteen Stohrer's cells, the positive pole being applied to the stylo-mastoid foramen, and the negative to the anterior borders of both sterno-mastoid muscles. During the first application the pulse sank from 106 to 96 pulsations, and continued, with one or two exceptions, below 102. The battery was applied daily, and bromide of potash was administered. In about a fortnight he was practically convalescent, and in twenty-eight days left hospital sufficiently well to resume moderate study. It may be noted that the patient was an extremely intelligent young man, an excellent chemist and physicist, of good position in life, who consented to come into the ward for my personal scientific satisfaction.

I have since had an opportunity of examining him after an interval of about a year, and find him in excellent health, having developed no further symptoms, either cardiac or neurotic.

The second case of this nature occurred in the person of a young man of considerable mathematical attainments, in residence at Cambridge, and preparing to go in for honours.

Case 7.—J. G—, æt. 19, consulted me in 1875 for palpitation with syncopic tendency. The heart-sounds, though ringing and metallic, were perfectly normal. He had no other illness; no history of blood disease could be elicited. His father was anxious that he should give up his university career, and lead the life of an invalid; to this he strenuously objected. He improved rapidly under the use of digitalis, and has, I understand, remained in fair health since.

Among what may be named the accessory symptoms of hysteria, as described by modern writers, are several which will repay a more detailed physical discussion. The chief of these are anæsthesia and hemianæsthesia (in its three forms of insensibility to touch, to heat, and to pain), convulsions, and delirium. Kindred subjects are achromatopsy and the effects of the magnet, with the asserted phenomena of Le Transfert.

The crude facts of "Le Transfert," as observed by the writer in M. Charcot's wards at the Salpêtrière, are as follows; —A sensitive subject, on whom many experiments had already been tried, presented marked hemianæsthesia on the right side of the body. She did not wince to any visible extent when stabbed with a large steel needle on the back of the right hand, and on the same aspect of the face and scalp. On the left side she resented the slightest touch. While in this condition the right eye was declared to be achromatoptic, and when using this alone she volunteered the statement that she saw "*gris.*" By degrees, and one by one the various spectral colours, which were spread before her on sheets of cardboard a foot square, became distinguishable, the red first, and the more refractile tints afterwards. She indeed picked them out of the heap in a regular order. It was, however, noticeable that though in all other cases the order of recognition was from the less refracted towards the most deviated and dispersed end of the spectrum, green formed a notable exception, not coming in its place, but among the last, and at the violet end. In the observation repeated with another patient the same thing occurred, though the latter did not seem so well up in her lesson (if the phrase may be innocently used) and made blunders in selecting the coloured surfaces. If the achromatoptic phenomena were purely physical in nature it is obvious that the spectral sequence would be followed, although on the writer making this remark to M. Charcot, he briefly answered that the phenomena had no reference to the spectrum. It would have been more satisfactory if real spectral colours had been projected on a screen in a darkened room, it being well known that green, as compounded by painters of blue and yellow pigments, cannot in any case be obtained by the same or any other mixture of spectral tints. It would also have carried more conviction if some measures

had been adopted to test and verify the voluntary statements of the patient's purely subjective sensations.

A permanent compound magnet, weighing about twenty-five pounds, and capable of supporting fifty kilogrammes or one hundred and fifteen pounds avoirdupois, was then placed on a table beside the outstretched anæsthetic right hand of the first patient. In a few minutes the same phenomenon in inverse order made their appearance in the left eye. The "Transfert" was declared to have taken place, and the right hand on being stabbed was found sensitive, whereas the left was now devoid of sensation. This was substantiated by rather severe experiments, both on the hand and on the face and scalp. The patient, though streaming with blood from both hands and both sides of the face, certainly made no complaint, and was quite free from any even involuntary wincing. It was stated that this oscillation of anæsthesia from side to side would continue for some hours, though no demonstration of the fact was possible, nor indeed was it attempted.

Now, it will be obvious to everyone that there were several weak points in the demonstration as described above. (1) In the first place, the purely uncorroborated and uncorrected character of the subjective phenomena as testified by the two females. (2) Secondly, the aberration of the results from the great physical law of dispersion. This dissidence may to a certain extent be estimated in the light of modern researches, and especially those of Ogden N. Rood, Professor of Physics in Columbia College, who has actually measured the second "constant of colour," namely, *Luminosity*. He shows that if white be represented by a luminosity of 100, chrome yellow has one of 80·3, emerald green of 48·6, cobalt blue, of 35·4 vermilion of 25·7, and ultramarine of 7·6.

Dr. W. Draper, by means of his spectrometer, also shows that in successively extinguishing colours by white light the violet first disappears, then the other more refrangible colours in their descending order, till at length the red only remains. *The yellow never stands out conspicuously, as might have been expected.* The "onus probandi" of the "irrational" behaviour of the green in these experiments therefore clearly rests with their originator. Thirdly, a physical estimate of the force of the magnetic field employed for the production of the "Transfert"

can at least approximately be obtained. It is clearly Diamagnetic and not in any sense Paramagnetic. All the tissues of the body have been found to set Equatorially and not Axially in the magnetic field. As a horseshoe, and not a bar magnet, was employed, the extent of the field was of course limited, and could not embrace more than about four inches of the tissues of the hand. The radiation of influence from such a field would, therefore, be necessarily small. If to this minute factor be added the feeble intensity of all diamagnetic as compared to paramagnetic action, it becomes at once obvious that the cause is totally insufficient, quantitatively, to effect so great a disorder of innervation as that here attributed to it. The best defence of the position assumed would be that the human organism is in a state of very delicate magnetic equilibrium, and liable to be turned, like a sensitive balance, by a couple of infinitesimal intensity. There is nothing physically improbable in such an hypothesis, which only reproduces the condition of a telegraphic cable worked on the "Duplex" system.

Important cases which have occurred since the former part of this memoir was written will be given in the second part, at page 333.

Experiments were made by the writer some years ago on himself, and with absolutely negative results. A large electro-magnet, weighing twenty-eight pounds in the cores, and about fifty pounds in the copper coverings, was placed in the centre of a darkened room. It was excited by a battery of 26 ¾ quart Bunsen cells. The battery was placed in the basement storey far away from the magnet, but connected with it by copper rods, three eighths of an inch in diameter, fully competent to convey the full current without loss by resistance. In the basement, also, was placed a commutating contact-breaker. This was worked by an assistant on a signal by means of a bell; the observer's head being placed between the poles, at a given signal the current was turned on and reversed in direction. No physiological change whatever could be detected. The clinking sound produced on the powerful magnetisation of iron was distinctly audible, but no other sense was affected. The observer then withdrew to some distance from the electro-magnet, and endeavoured to see the "flames" said to proceed from the poles in Reichenbach's experiments. Here, again, though the expe-

riment was performed at eleven o'clock on a winter's night, with the shutters firmly closed, nothing could be seen. Lastly, highly sensitive photographic plates were repeatedly introduced between conical poles intended to concentrate the magnetic field. On development they all proved the total absence of actinic action.

Quite recently, and with a view to test M. Charcot's experiments, a large electro-magnet has been set up in Christian Ward, excited by eight very large Smee's cells of about a gallon capacity each. Although the electro-motive force of this battery is not very high, its resistance is small, and the magnetic field with the same magnet is sufficiently powerful to rotate the polarised ray about 6° in a rod of heavy glass five inches long. The only case on which it has yet been tried is an old case of tic douloureux affecting all the three branches of the trifacial nerve. The case is one of ten years' standing, and as it has hitherto proved rebellious to the ordinary treatment it was considered fairly susceptible of experimental methods.

The magnet, which is of the pattern figured in Ganot's 'Text-book of Physics,' for demonstrating the rotation of the ray, has movable conical poles surrounded by about thirty pounds of copper wire. The magnetic field is very intense and concentrated. This has been placed at the head of the patient's bed on a deal plank; pillows are then placed on the base-plate so that she can rest in her usual position, but with one conical nipple-shaped pole at each stylo-mastoid region. The neuralgic pain comes on in sudden accesses, during which it is so severe that her cries disturb the whole ward. She has been directed to complete the circuit by means of a commutator placed near her hand whenever the access seizes her. At first she thought the magnetic field produced a slight alleviation, followed by greater intensity of the pain after its cessation. In consequence, however, of a foolish and erroneous statement made in her hearing, that the Smee's battery gave off nitrous fumes, she has taken a prejudice against the apparatus, and it is difficult to obtain correct results. It is clear, however, that the effect, if at all perceptible, is very slight. Before trying the arrangement on any patient, the writer tested it on himself. He feels bound to say that with the best will imaginable, he could notice no definite result.

It appears that a similar question was long ago asked of Faraday, when he was engaged on his diamagnetic discoveries by means of the large magnet belonging to the Royal Institution. He stated that he had never been able to trace the slightest physiological effect, whether sensorial, motor, or hypnotic, on himself when using the strongest magnetic fields then attainable. It is true that the discovery of dynamo-magnetic machines has placed at our disposal currents of vastly greater electro-motive force and quantity than were then available. With these the subject should, if at all, be patiently investigated. One or two rather trivial facts, such as the inability of many persons of nervous temperament, of whom the writer is one, to sleep soundly in the north and south position, a position obviously forced for a diamagnet such as the human body, and the singular vitality of magnetic treatment from very early times down to the present, are hardly strong enough to countervail the negative evidence here adduced. Still the subject, not being in direct contravention of any known scientific proofs, deserves further investigation in a fair and dispassionate spirit. It seems *primâ facie* improbable that so important a factor in cosmogony should be otiose and inefficacious in its highest development—human life.

For a continuation of the above experiments and illustrative cases, see p. 333.

A CASE OF ANEURYSM OF THE AORTA

TREATED BY

GALVANO-PUNCTURE,

WITH SOME OBSERVATIONS ON THORACIC ANEURYSMS.

By WILLIAM M. ORD, M.D., F.R.C.P.

PART I.[1]

The subject of treatment, N. K—, was a spare, anxious-looking, and very excitable man, æt. 44, by occupation a law-writer. He had always enjoyed good health up to the year 1873, having had no serious illness or injury. According to his own account he had not had syphilis. In July, 1873, he began to experience sharp pain in the front and right side of his chest, together with shortness of breath. Soon afterwards he applied for treatment at St. Thomas's Hospital, at first as an out-patient under me. The existence of aneurysm of the ascending aorta was then fully apparent. In December of the same year Dr. Bristowe was good enough to admit him to Charity Ward, where he was very rigorously treated on Mr. Tufnell's system of complete rest and limited diet. By the end of six months the aneurysmal bulge, which was very prominent before his admission, had completely subsided, although the other physical signs of aneurysm remained unaltered. Becoming

[1] The first part of this paper was read before the Medical Society of London in March of this year; the second embodies some clinical lectures delivered during last autumn at St. Thomas's Hospital.

weary of constraint he left the hospital, and resumed attendance as an out-patient. A long course of treatment, first by iodide of potassium, then by digitalis, and, lastly, by ergot, was instituted, but, as he gradually grew worse, he was admitted again, now under my care, in August, 1875. At that time he presented a pulsating bulge extending vertically from the third to the fifth right costal cartilage, horizontally three inches and a half from the sternum. The bulge and pulsation were most marked in the third interspace, and the whole area was dull on percussion. There was a systolic thrill. Over the bulge in front, and at the corresponding point on the back of the chest, a well-marked double murmur, systolic and diastolic, was heard; the impulse of the heart was not felt distinctly at the usual point, but was strongest at the left side of the xiphoid cartilage. Over the proper site of the apex the first sound was reduplicated, without murmur; with the diastole was heard a soft murmur, apparently conducted from the aortic orifice, in addition to the normal diastolic thud-sound. The left lung was evidently emphysematous; the right was as evidently compressed by the tumour, percussion-resonance being diminished over its upper half, the respiratory sounds being harsh, almost tubular, and vocal resonance being exaggerated. The pulse had the collapsing character belonging to aortic regurgitation, and was of equal volume at the two wrists; there was no paroxysmal dyspnœa; no dysphagia; no alteration of voice, or inequality of pupils; much shortness of breath on exertion. The urine contained neither albumen nor sugar. Under rest and partial restriction of diet he again improved and went out. In December, 1877, he was admitted for the third time. The tumour had then increased very considerably, the projection reaching up to the first interspace, the skin being tightly stretched over it, without adhering, however, at any point. It was evident on manipulation that the walls of the sac, as well as the skin, were greatly attenuated, and that the tumour contained no clot on its anterior aspect. In face of this continuous progress of the aneurysm towards the surface, resort was had to galvano-puncture, with the hope of producing some protective coagulation within the sac. My colleague, Mr. Mason, was good enough to take charge of the operation, which was performed on the 3rd January, 1878. A Stohrer's battery of forty cells was used as

the source of electricity. To the negative electrode two needles were attached by separate wires provided with clamps, allowing of the ready connection and disconnection of the needles. The needles were such as are used in harelip operations. They were thickly sheathed to within three quarters of an inch of their points with sealing-wax carefully polished. One was thrust in near the axillary border of the tumour, the other on the sternal side, two and a half inches distant, on the same level. The circuit was completed by bringing into contact with the skin over the tumour a moistened sponge connected by wire with the positive electrode. Six cells were used at first, and the sponge was applied at the upper border of the tumour, equidistant from the two needles.

At the end of three minutes the patient complained of "pricking" at the punctures and "inside."

At five minutes the "pricking" continued; ten cells were used.

At nine and a half minutes the sensations had become of a "burning" character.

At ten minutes the sponge was shifted to the sternal side of the tumour, and twelve cells were turned on. The needles had hitherto both moved freely with respiration and pulsation, but now the movement of the sternal needle decreased a great deal.

At twenty minutes, the sponge being moved to the axillary border, the axillary needle moved less freely, the sternal more freely.

At thirty minutes the sponge was moved to the hepatic border, and twenty cells turned on. This caused so much distress in the way of burning pain that the number was reduced to eighteen. Soon afterwards the discomfort at the punctures decreased and almost disappeared, the sponge, on the other hand, giving rise to much complaint.

At forty-five minutes a blueish areola, about one sixth of an inch in diameter, appeared around each needle, and the tumour showed an acuminated projection at each point. Small bubbles gathered around the needles, frothing up from their tracks. Cauterisation was taking place at the punctures. The axillary needle being partly withdrawn was found to be denuded of its insulating material.

At fifty-six minutes the areolæ were of a pale grey colour,

and the cuticle was loosened. The needles were now withdrawn. As each was carefully pulled out a little open passage was left, through which fine jets of dark blood issued. Each orifice was lightly closed by shallow transfixion with a harelip pin, and covered with collodion and cotton wool. During the withdrawal the current was maintained in the hope of searing the surfaces and preventing bleeding.

After the operation the tumour was reduced in size and firmer to the touch. It felt as though it were thickly padded within. The pins were removed next day without hæmorrhage. At the end of a fortnight the little superficial sloughs which had formed around the needles came away, leaving granular surfaces. One of these healed about sixteen days later; the other remained covered with a scab at the time of the patient's death. The further progress of the tumour was most satisfactory. It became steadily firmer and smaller, the latter point being made clear by measurements. On the day of operation it measured 7 inches vertically, $7\frac{1}{2}$ transversely; on the sixteenth day afterwards 6 inches vertically, $6\frac{3}{4}$ transversely. The patient had neither fever nor suffering, and seemed to be doing well, when on the 30th of January (twenty-sixth day) he had a rigor, pain over the heart, and a sudden access of febrility. The acuteness of these symptoms lasted only a few hours, but from this time the patient lost strength, became irritable, and was much distressed by pain in the right arm whenever, as was mostly the case, he lay inclined to the right side. On the 18th signs of blocking of the innominate artery appeared, and the patient died on the 22nd of February, forty-nine days after the operation.

The body was examined next day by Dr. Greenfield, whose notes are appended.

"Body emaciated; no anasarca. A rounded prominence, size of a cricket ball, extending from upper border of second rib to lower border of fourth, and from right border of sternum to one inch outside nipple. Tumour soft in centre, and especially so towards inner part. Slight œdema of cellular tissue of neck. Right internal jugular vein distended, containing a large quantity of uncoagulated venous blood. Skin adherent over swelling only at two points near most prominent parts (galvanopunctures).

"On opening chest, pericardium at lower part natural. Heart extended three inches to the left of median line opposite the fifth rib; at upper part, towards right side, pericardium adherent, also adhesion to right of sternum corresponding to area of external tumour.

"Right pleura contained one and a half pints of fluid; left pleura half pint.

"Pericardium contained a small quantity of turbid fluid. Slight early pericarditis, chiefly at base and on front of right ventricle.

"Right lung somewhat collapsed.

"*Kidneys;* weighed 10 oz., were much indurated, not enlarged. Typical chronic congestion; capsule slightly adherent, and in some parts separating in layers.

"*Spleen;* 4½ oz., slightly enlarged and hard.

"*Liver.*—Gall-bladder contained much dark bile. Weight of the gland 2 lbs. 13½ oz., small; on capsule over upper surface of right lobe two somewhat irregular fibrous patches, quite superficial; no puckering of substance of organ; nutmeg section.

"*Head.*—Dura mater natural; longitudinal sinuses empty. Very marked excess of subarachnoid fluid, with corresponding diminution of convolutions; small dotted opacities of arachnoid; vessels at base not atheromatous.

"*Brain,* 2 lb. 12 oz.; substance rather watery, but otherwise healthy.

"The heart and aneurysm sent entire to the Museum. The heart was not hypertrophied. The mitral valve was somewhat thickened. The aortic orifice was large and distorted, and the valve incompetent.

"The aneurysm commenced at the valve with a general dilatation of the aorta, extending to the origin of the left carotid. The bulge was chiefly to the right, and at about three inches from the valve a second bulge, defined by an hour-glass constriction from the dilatation, formed the sac which projected as above described; the constriction was on the upper aspect two inches below the origin of the innominate artery. The transverse diameter of the entire dilatation was six and a half inches, the vertical five and a quarter inches.

"On opening the sac the projecting part, which had been the

seat of operation, was found thickly lined at its outer aspect, less thickly at its middle, and scarcely at all on its inmost circumference, by clot. The clot was firm and stratified externally, very soft and friable internally; and it showed greater thickness and density at and around the punctures. The thin inner wall seen in the preparation[1] represents what was, as far as could be made out, the condition of the whole sac before the operation. The axillary artery, and the commencement of the right carotid and subclavian, were blocked by clot; from the mouth of the innominate a little boss of soft fresh clot projected into the sac."

Remarks.—1. As concerns the general result of the operation, we—Mr. Mason and I—may claim to have attained the objects proposed, namely, of producing a coagulum within the sac, of diminishing, through the subsequent contraction of the clot, the bulk of the tumour, and of arresting, so far, its dangerous pressure upon surrounding parts.

2. The preparation exhibited shows, we represent, much progress in the consolidation of the clot, and warrants the belief that by further operations the projecting sac might have been completely filled up. The preparation also shows the thin-walled globular diverticulum to have been just such a form as is generally held to be suitable for the operation practised.

3. The death was apparently due to the shock, &c., following the obstruction of the innominate artery. The examination of the artery leads to the conclusion that the obstruction was by thrombosis, the walls of the artery and its main branches being much degenerated, and the contained clot being recent and adherent. Even had the obstruction been by embolism, the occurrence could hardly be held to be an indication unfavorable to the operation, ligature of that artery being now recognised as a mode of treatment in aneurysms of the kind existing in this case. The thrombosis was probably due to change in the coats of the artery, produced by the constant pressure upon it involved by the position almost exclusively maintained by the patient—the position which in the main was most easy and restful.

4. As regards the details of the operation, it may be stated that no anæsthetic was used. The coating of the needles, for

[1] Now in the Museum of St. Thomas's Hospital.

which I was responsible, was decidedly inefficient. On any subsequent occasion I should use the needles insulated by vulcanite, recommended by Dr. Duncan ('Treatment of Aneurism by Electrolysis,' by John Duncan, M.D., &c., 1867; with an Account of an Investigation into the Action of Galvanism on Blood and on Albuminous Fluids,' by Thomas R. Fraser, M.D., &c.). Dr. Duncan, after many experiments, found this to be the only available material which was not destroyed in the operation.[1]

5. We inserted the needles attached to the negative pole in the hope of obtaining a voluminous clot, being much impressed with the reasoning of Dr. Althaus on this subject; and we kept the positive pole free and movable, in order to effect wide distribution of the clot. It is noteworthy that bubbles of gas formed around the needles as bubbles form round the negative pole in experiments outside the body. The patient was not, however, conscious, as has sometimes been the case, of any sensation of bubbling within the sac. The cauterisation of the skin around the needles indicated, of course, the failure of the insulation. The sloughs produced were superficial, but it must be confessed that they gave rise to much anxiety until they separated, leaving clear granulating surfaces beneath. The skin over the tumour also rose in blisters at every point to which the sponge had been applied.

In the foregoing account it is stated that N. K— was treated for some time with ergot. This raises a question in physiology and a question in therapeutics. I was led to try the use of ergot in internal aneurysm by my late lamented friend, Dr. Sibson, who made many observations on its effect on the vascular system in the presence of Dr. Broadbent, Dr. Rutherford, and others beside myself. Dr. Sibson was inclined to think that ergot might be useful in curing aneurysm by producing contraction of the sac. It certainly does possess, as we all know, a power of causing contraction of the coats of arteries and of other tubes and cavities invested by organic muscular

[1] Dr. Hughes Bennett, of the Westminster Hospital, has recently used glass-covered needles, which he has been good enough to show me. He informs me that they were not injured by the passage of the current, but maintained perfect insulation.

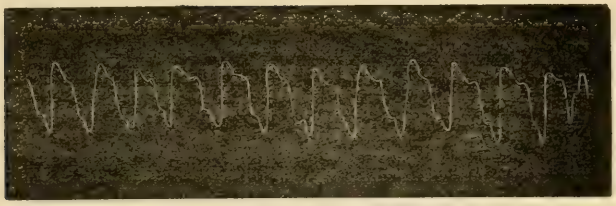
fibres; a power which is put to use by many practitioners in the treatment of hæmorrhages. And in the case of aneurysm it certainly appears to cause, with contraction of and diminution in the movements of the arterial walls generally, a diminution in the movements of the sac, and apparently also a reduction of its size.

The effects of the administration of ergot, so far as the *arteries* are concerned, may be illustrated by sphygmographic tracings taken by me in the case of N. K—. In the diagrams appended the first tracing is from the radial artery before the the administration of ergot. It is a very good example of the kind of tracing obtained where aortic regurgitation exists. We may notice the rapid and extensive upstroke terminating in a distinct percussion wave, which in turn is followed by a tidal wave ending in a rapid fall. The aortic notch is very low down, little marked, and followed by hardly any dicrotic rise. The tracing in its later part shows something of the influence of tension in the principal arteries, a condition pointed out as existing in such cases by Dr. Galabin in the 'Medico-Chirurgical Transactions,' for 1876. Ergot was given in the form of the liquid extract combined with a little chloric ether.

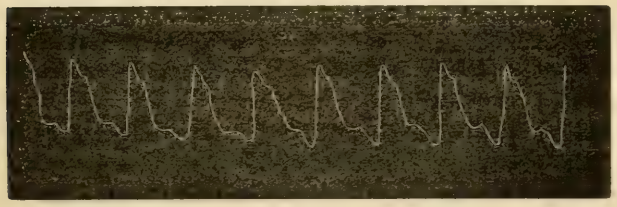
On the occasion in question thirty drops were given. The tracing taken at the end of twelve minutes shows the effect of the ergot very plainly. The upstroke is more sloping and is shorter. The percussion stroke is shorter and broader; the subsequent fall slower; the dicrotic rise reduced, and the emptying of the artery slower. The period of systole is prolonged. These changes are all intensified in the tracing taken at fifteen minutes. But at thirty minutes the effect is clearly passing off. In many observations it was found that the effect was again seen when a tracing was taken later; that, in fact, the contraction varies in degree in successive periods.

I now show tracings from two cases under my care taken by Dr. Sibson with the cardiograph. In both of these the tracings are from an aneurysmal sac. They are partly continuous tracings. The difficulty always meeting us in comparative sphygmographic observation, that, in reapplication, the instrument cannot be certainly adjusted always in exactly the same way, so that the results cannot be regarded as exactly parallel, was to a large extent obviated by an ingenious arrangement

CASE 1.—N. K.

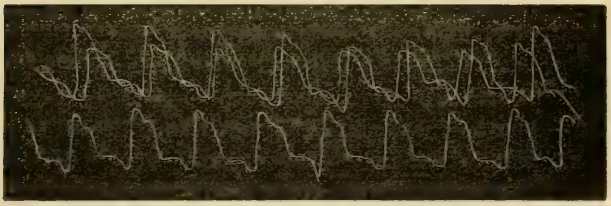


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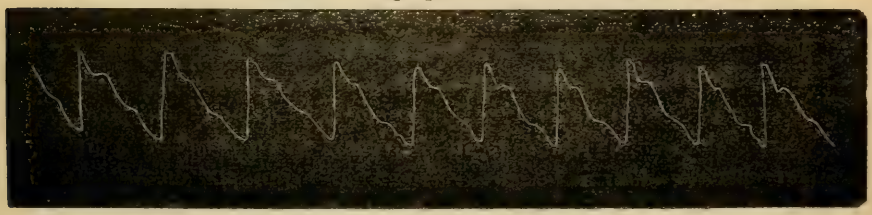
Before ergot.

c
b
a



After ergot. (*a*) 12 minutes, (*b*) 15 minutes, (*c*) 30 minutes after ergot.

For comparison; tracing from J. E. Aneurysm of aorta, with aortic and mitral regurgitation.



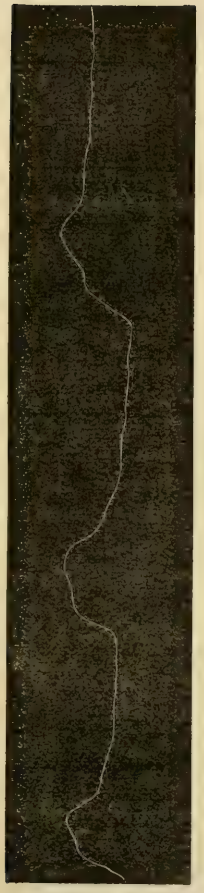
devised by Dr. Sibson with the aid of Mr. Hawksley. The revolving drum carrying the blackened paper was placed on the top of the hollow piston of a cylinder from which the air was allowed to escape at a fixed rate, ensuring the gradual and uniform sinking of the drum during the tracing process. By this arrangement an unbroken tracing, corresponding to from twelve to twenty revolutions of the disc, and therefore to as many minutes, could be taken.

In the first case which I will quote, that of C. C—, the aneurysm was in the transverse part of the arch of the aorta, and projected upwards in the median line, above the notch of the sternum, as a rounded tumour. Full notes of the case are appended, and I will only quote to you at present the result of the use of ergot. In the first place, whenever the patient took ergot she experienced speedy relief from many of the symptoms produced by the pressure of the tumour on the trachea and œsophagus; the tumour was found by careful measurements to project less above the sternum, and the pupils became enlarged. The tracings taken from the aneurysm show clearly a diminution in the range of movement and increase in the tension of tumour and artery after the administration of the ergot.

The third case which I shall quote is that of D. F—, a man long under my care at St. Thomas's Hospital for aneurysm of the abdominal aorta. The tumour was situated just above the umbilicus, and could be readily reached and measured. Continuous tracings taken before and after the administration of ergot are exhibited. The first dose was one drachm of the liquid extract, and a second dose of twenty drops was given during the observation. The tracings, it will be seen, show a large reduction in the range of movement of the walls of the tumour. Measurements of the tumour were also made, according to which, at the time when the effect of the ergot was most pronounced, both diameters were lessened, the vertical by about one sixth, the transverse by one fifth.

In both of these cases, and in several others of which I have notes, the patients constantly expressed themselves as relieved after several days of treatment with ergot. Thus, N. K— used frequently to ask that he might have the ergot when his breathing was much oppressed, and invariably reported amendment as regarded pain and improved power of exertion after a few days.

CASE 4.—C. C. *Effects of ergot. Tracings from aneurysm.*



Before ergot.

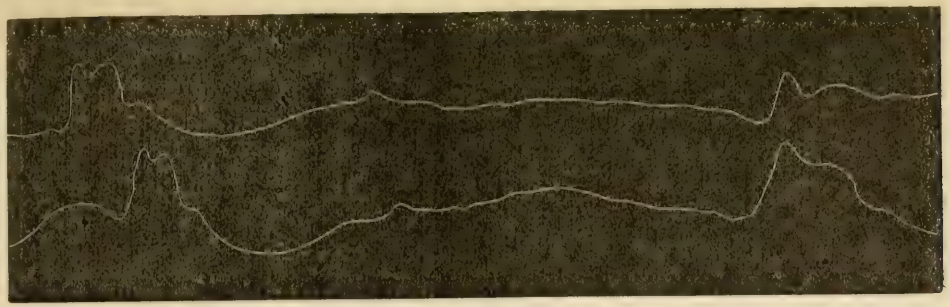


43 minutes after administration of ergot.

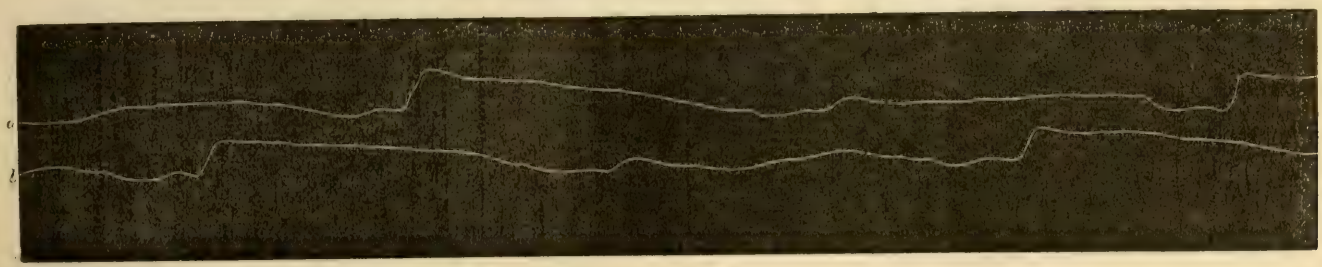
C. C—, after taking twenty drops of the liquid extract three times a day for a week, was reported "as looking much brighter, less purple in colour, with superficial veins of face much less injected and muscle-markings on the neck much more distinct." She stated that "she had not had any of the suffocating feelings that she formerly experienced, could swallow more comfortably, and also could keep her food down." She had suffered before from very marked dysphagia. She said that she always felt better soon after taking the medicine, and confessed that she frequently took an extra dose when any aggravation of her symptoms occurred.

D. F—, after a week of treatment, said that he had become "looser on the chest, and was better able to move about." His appearance was improved and the general circulation was more vigorous. The relief thus afforded appears to be due to both of the effects noticed—the limitation of movement of the walls of the aneurysm, and the reduction of its size. Wherever aortic regurgitation exists, the alternations of collapse and sudden distension throughout the arterial system and in the aneurysmal sac obviously favour both the formation of aneurysm in atheromatous vessels and the extension of existing dilatations; and where, on the other hand, the valve is perfect the diastolic shock produced by aneurysm is very great. It is only necessary to watch any case of the kind to recognise the distress caused by this phenomenon alone. The ergot, by opposing outflow at the periphery of the arterial system, will certainly tend to keep the larger arteries fuller, and so to limit the range of movement on the side of collapse. This would so far reduce the shock of distension. We should have, as it were, a sail filled by a constant breeze instead of a sail flapping dangerously before gusts. But in order to explain the limitation of movement outwards, seen in the reduced size of the sac, we must suppose the sac to have a contractile power of its own, capable of being augmented by the ergot, or we must suppose that the impulsive force of the heart is moderated by the drug. Dr. Sibson entertained the former idea; but on anatomical grounds this idea would not commend itself. The coats of the large arteries are, as we know, much more elastic than muscular, and unless in aneurysm some marked muscular hypertrophy arise, it is difficult to see how muscle enough to effect such pressure can

CASE 5.—D. F. *Tracings from abdominal aneurysm, with alternate strong and weak beat.*



Before ergot.



(*a*) 43 minutes after ergot; (*b*) 42 minutes after ergot.

exist. In relation to this question, I have carefully examined with the microscope the walls of the sac in N. K— and in another case, and can find nothing but degeneration—no sign of a perfect fibre left. Consequently, I am obliged to seek the explanation in a moderated action of the left ventricle. The fact that the changes produced by ergot in the sac were not affected by the existence or non-existence of aortic regurgitation is of some importance. Among the cases appended to this paper is one which goes to show that increase of general arterial tension not produced by ergot aggravates the sufferings produced by aneurysm and leads to distension of the sac. In 1875, being on duty for Dr. Bristowe at St. Thomas's Hospital, I had charge of a case in which, with great cardiac atrophy, there was evidence of advanced renal degeneration. There were no murmurs over the heart, but the diastolic sound was unusually loud and sharp over a large area at the base, most intensely at the third right costal cartilage. A few days after his admission the bowels became obstinately constipated, and his breathing grew worse from day to day till he could not lie down. A distinct pulsation was now observed, unaccompanied by murmur, but with thrill, over the second and third spaces to the right of the sternum. The pulsation increased from day to day until a prominence was quite visible. It was not until two doses of croton oil had been given that the bowels were relieved. The action of the oil produced bloody stools and other signs of intestinal irritation, and it was not till this had passed off that abatement of tension followed. After a week the prominence had nearly disappeared, and the pulsations had become less pronounced. Before further changes could be watched he died from cerebral hæmorrhage. Dr. Mahomed, in a valuable paper ('Med.-Chir. Trans.,' 1874), has shown that in cases of albuminuria arterial tension is very distinctly heightened by constipation. In the case quoted here, the left kidney had undergone complete atrophy, the right was enlarged, granular on the surface, and indurated, with some comparative loss of cortical structure. The aorta was dilated above the valve; the valves were healthy. Arterial tension was very high at all times, and, quickened by the constipation, caused, by backward pressure, the dilatation of the aorta, which at the time must have been very great, although at the post-mortem examination the cir-

cumference of the enlargement did not exceed four inches. Tracings from the radial artery and from the aneurysm are appended to the case.

A few words as to the practical value of ergot in internal aneurysm may now be appropriate. In no case has it appeared to produce any dangerous symptom. In some persons it occasions nausea, but the addition of a few drops of spirit of chloroform usually prevents this discomfort. In most cases it gives relief, general and local, shortly after its administration; and being continued for some time keeps up relief. But continued ever so long it does not cure aneurysm, nor does it produce any permanent decrease of aneurysmal sacs. It appears to me to be a most valuable palliative medicine, such as may be safely and advantageously applied, in conjunction with iodide of potassium, Tufnell's method, or other treatments reputed to be radically useful.

Part II.—Observations on the Diagnosis of Thoracic Aneurysms.

The histories of nineteen cases of internal aneurysm which have come under my care during the last few years are appended to this paper, together with the histories of a few other cases illustrative of the diagnosis of such aneurysms. I propose now to review some of the points in diagnosis upon which these cases bear.

If we begin by enumerating the phenomena to which thoracic aneurysms may give rise, forming thereby a list about coextensive with our elements of diagnosis, we shall find them very numerous. They include, first, the physical signs of aneurysmal tumour; next, accessory signs, such as the size, position, and sounds of the heart, the condition of arteries and veins; the effects of pressure upon muscular, vaso-motor, and sensitive, perhaps also upon trophic, nerves, and, in relation with these, the condition of the larynx, the size of the pupils, localised sweats, &c.; dyspnœa, variously caused; dysphagia, variously caused; affection of the lungs, pleuræ, and pericardium; effects of pressure upon thoracic duct; effects of erosions; and cerebral symptoms. For convenience of reference I will note in a tabular form some of the most important points.

The more important symptoms of thoracic aneurysm.

1. Belonging to aneurysm	*a.*	Pulsation.
	b.	Tumour.
	c.	Thrill.
	d.	Murmur.
	e.	Diastolic shock.
2. Belonging to heart	*a.*	Hypertrophy.
	b.	Displacement.
	c.	Murmur.
	d.	Pericarditis.
3. Arterial	*a.*	Pulse. Inequality of two sides. Postponement. "Water-hammer."
	b.	Arterial circulation in lower limbs.
	c.	Conditions of arteries.
4. Venous		Veins of neck; distension; influence of respiration.
		Veins of arms and body.
5. Vasomotor	*a.*	Variations of pupils.
	b.	Variations of local temperature.
	c.	Local sweats.
6. Respiratory	*a.*	Dyspnœa generally.
	b.	Paralysis of recurrent laryngeal.
	c.	Pressure on trachea.
	d.	Collapse of lung; emphysema.
	e.	Inflammation of lung.
	f.	Pleurisy and empyema.
7. Dysphagia.		
8. Pain	*a.*	In region of tumour.
	b.	Elsewhere.
9. Emaciation	*a.*	General.
	b.	In connection with thoracic duct.
10. Insanity.		

1. Physical symptoms of aneurysm. When the sac is in contact with the wall of the chest we may expect to find five important signs—pulsation present at a point normally free from pulsation, tumour or bulge, thrill, murmur, and diastolic shock.

The pulsation of an aneurysm is, as all authorities agree, different from the pulsation of a solid tumour overlying an artery or the heart in that it has a diastole or expansive movement synchronous with the systole of the heart. This may be detected in various ways, either by placing one hand over the tumour and the other hand on the opposite, usually the posterior, side of the chest, as Dr. Stokes has recommended; or by

the use of chest measures, such as have been devised by Dr. Sibson and Dr. Ransome; or by the simple expedient of applying the small end of a stethoscope flatly, by means of the thumb and forefinger, over the tumour at different points, and watching the direction of movement of the larger end, movements which may be readily made more visible by sticking a long quill into the tube. In one case, that of C. A—, this method at once led to the detection of the true nature of a pulsating tumour over the second right costal cartilage, the adjoining part of the manubrium, and the first and third right interspaces. The tumour was firm, very painful, and had been supposed to be aneurysmal. But the total absence of any but impulsive movement threw a strong doubt upon this supposition, and the subsequent history showed that the pulsation was produced by a carious swelling of the bony structures at the parts mentioned projecting backwards so far as to press on the root of the aorta. In another case, W. P—, a pulsating swelling, unaccompanied by murmur or thrill, occupying an area of dulness corresponding to the inner part of the first right intercostal space, the second costal cartilage, and the inner part of the second intercostal space, failed to give evidence of diastolic movement, and although aneurysm was suspected, the true nature of the swelling remained doubtful. The case was altogether so interesting that I venture to give a short account of it. The patient had severe shooting pain in the lower part of the left side of the chest, and applied on this account for treatment. The swelling mentioned at once attracted attention. The heart was found to be hypertrophied and displaced to the left and downward. The left lung was over-resonant in front over its upper half, was dull with signs of partial consolidation over a little less than its upper half posteriorly, below this over a narrow strip resonant, below this, again, dull with signs of fluid in the anterior and lateral parts of the pleura, and signs of consolidation posteriorly for four or five inches outward from the spine. There was marked dysphagia; the liver dulness extended in the nipple line from the sixth rib to near the level of the umbilicus.

About a fortnight afterwards the heart was found to be changing its position, to be thrust strongly forward, and to be moving to the right, the signs of a localised collection of fluid in

the lower antero-lateral part of the pleura remaining as before. Taking all points into consideration, I was inclined to regard the case as one of new growth projecting above to the right, occupying the posterior mediastinum and invading the posterior inferior part of the left lung; and on this ground I did not think it desirable to puncture the pleura. The right lung presently became pneumonic from above downwards, and the patient died. At the post-mortem examination two aneurysms were found; the first a globular sac, three inches in diameter, projecting from the right side of the aorta, one inch above the aortic valve; it was completely filled with firm clot and was to all intents a solid tumour; the second, seven inches long by four or five wide, involving nearly all the descending thoracic aorta, bulging in the pericardium, eroding the bodies of the eighth, ninth, and tenth dorsal vertebræ, and compressing the root of the left lung. The tissue of the lower third of the left lung was solid, and it contained a large cavity filled with stinking pus; there were also many gangrenous parts in the solid tissue. Below the left lung and between it and the diaphragm was an empyema containing one and a half pints of fœtid pus. The aneurysm bulged strongly into the empyema cavity, only a very thin wall separating the two, so that a puncture of the empyema would most probably have led either to puncture of the aneurysm or to bursting of the same on withdrawal of the pus. The heart was not hypertrophied, and the valves were competent. The whole progress of the case was so like that of cases of intra-thoracic cancer that when the solid state of the superficial aneurysm is considered the balance of indications may still be held to have been in favour of new growth as against aneurysm up to the time of death, although the possibility of the existence of aneurysms was carefully kept in view and discussed.

Several authors, among whom I may particularly cite Dr. Cockle ("Aneurismal Tumours involving the Neck," 'Med. Times and Gazette, 1863, vol. i, pp. 504, 531, 557; and 'Intrathoracic Cancer,' 1865), have pointed out that pulsation, purring tremor, and murmurs, may be produced by intra-thoracic tumours not aneurismal. The impression left, in fact, by Dr. Cockle's book and by the valuable treatise on the same subject by my former teacher, Dr. Risdon Bennett, now President of the College of Physicians, made me careful not to

accept too easily the presence of any or all of these signs as evidences of the presence of aneurysm.

Under this head may be also mentioned another class of cases in which difficulties of diagnosis arise, namely, where, with adherent pericardium, are combined hypertrophy of the heart and affection of one or other of the valves. In such cases undue pulsation may exist over the base of the heart and the great vessels, in particular over the left auricle, with thrill, unnatural dulness on percussion, and murmurs. If to these there chance to be added contraction of the left lung, drawing the adherent pericardium and heart far away to the left, the conditions produced by aneurysm of the descending aorta are closely simulated. It is not easy in such cases to say which way the phenomena are to be read. Whether, for instance, we are to start with conditions pushing the heart to the left and causing compression of lung and adhesion of pleura, or with conditions starting in the lung and pleura, and ending in dragging the heart out of its place. The early history of the patient's illness is, as Dr. Stokes has remarked, our best aid in diagnosis. Speaking generally, a clear statement of the previous occurrence of an attack of acute rheumatism would for the most part enable us to avoid mistaking the adhesions of that disease for the affects of aneurysm. Among the cases appended is one in which this difficulty arose, and from the circumstance that the history was obscure was not cleared up during life. With that I will compare a case in which congenital deformity of the heart existed in conjunction with acquired deformity of the spine. (See Cases 19 and 17).

In proceeding to analyse the nineteen cases appended, I may state that sixteen only are available for comparative analyses. In one the history is imperfect, in one the notes of examination are lost, in one death occurred suddenly soon after the admission of the patient, and before examination could be made.

In respect of the physical signs of aneurysmal tumour which we have just been discussing:

Pulsation was observed in fifteen cases; it was absent in one (Case 3), whose other symptoms pointed very decidedly to the existence of aneurysm of the left part of the transverse and the commencement of the descending aorta, its absence being remarkable, inasmuch as there was a distinct area of dulness.

Dulness on percussion was noted in fifteen cases.

A thrill was distinctly felt over the pulsating area in seven cases; doubtfully in one; not at all in eight.

A double murmur was heard over the aneurysm in two cases; a systolic murmur only, in six; a diastolic murmur only in one; in five there was no murmur; in two the existence of murmur was doubtful, and the subject of debate among the observers. Two of the cases were somewhat remarkable. In one (Case 14) a very large aneurysm, involving the arch and the part of the descending aorta, failed for a long time to yield several of the more important diagnostic signs. There was a large area of dulness, but neither pulsation, murmur, nor thrill; after a time pulsation appeared, and, later on, a systolic murmur of no great intensity was heard over the aortic valve, but at no time was murmur heard or thrill felt over the tumour, nor was the diastolic shock particularly strong.

"A diastolic bruit, audible at the site of the suspected aneurism, while the second sound is clear at the base of the heart," is spoken of by Dr. Douglas Powell (Art. "Aneurism of Thoracic Aorta," in 'Reynolds' System of Medicine,' vol. v) as an "important sign." This sign was noted only in one case (Case 4). Here the second sound of the heart was loud and ringing over the base of the heart and along the ascending aorta, but at the left sterno-clavicular articulation over the left end of the tumour a limited, soft, diastolic murmur was heard, while over the middle of the tumour above the manubrium a louder diastolic was accompanied by a soft systolic murmur. The interpretation and the value of this sign appear to me worthy of further investigation, particularly in aneurysms of systemic arteries. A strong diastolic shock is noted in five cases; in two cases the shock was "not marked;" in three its absence is noted; in the remaining six the phenomenon is not referred to.

The value of hypertrophy of the heart as a sign of aneurysm is not very great. In the first place, it is often difficult to be sure during the life of the patient whether some of the physical indications pointing to hypertrophy may not be due to displacement of the heart; in the second place, altered conditions of the left lung often cause variations in the extent of the area over which the heart comes into contact with the wall of the chest; in the third place, hypertrophy is not by any

means a constant effect of aneurysm uncomplicated with valvular disease.

Hypertrophy existed, or appeared to exist, in thirteen out of seventeen cases. It was not present in three cases; uncertain in one.

Two of the cases of aneurysm in which no hypertrophy was found were free from valvular complications; in the third marked aortic regurgitation existed. On the other hand, in all the cases presenting cardiac hypertrophy other obvious causes of such hypertrophy were in existence besides aneurysm. In the first case on the record advanced cirrhosis of the kidneys, with excessive arterial thickening, offered a sufficient explanation; in the rest disease of either mitral or aortic valve or of both existed.

The cases under review therefore tend to show that aneurysm of the aorta does not necessarily cause hypertrophy of the left ventricle. This is contrary to Niemeyer's opinion, but in harmony with Blakiston's cases and with Dr. Peacock's article on "Hypertrophy of the Heart," in 'Reynolds' System of Medicine,' which, although quoting "aortic obstruction" as a cause, does not quote aneurysm, except in one case of Dr. Bennett's. It is obvious that unless renal diseases and valvular changes be eliminated, the value of any table stating the proportionate frequency of hypertrophy in aneurysm of the aorta is almost lost. In this respect, Dr. Sibson's valuable tables ('The Aorta and Aneurism of the Aorta') are somewhat wanting, since, although they show hypertrophy to have existed in a very considerable number of cases, they give no available indications of the extent to which valvular disease was present.

As regards displacement of the heart, I have already quoted two cases illustrating its bearing on diagnosis. Displacement may be produced by aneurysm in two ways. The ascending aorta being lengthened may carry the heart downwards, either directly or to one side, or the aneurysm may encroach on the heart and thrust it one way or another. In a case of great interest, recorded in the appendix (Case 5), I was led to the discovery of an abdominal aneurysm by finding the heart greatly displaced downwards and to the left. There was no valvular disease, no pulmonary affection, no renal disease, and, until I

found a pulsating tumour in the abdomen, I was inclined to attribute the displacement to natural deformity. There were good evidences that the aneurysm produced much obstruction to the flow of blood. The natural result of this was distension and elongation of the whole aorta above the tumour, leading to the displacement of the heart. Where the displacement is brought about by pressure of the aneurysmal sac on the heart the greatest care is necessary in order to read the indications aright. Should the tumour bulge above the heart, pushing it downward, hypertrophy is simulated. Should a deep-seated, lung-covered aneurysm, not bulging, thus push down the heart, there is danger of the real cause being overlooked, some other cause of arterial elongation being entertained. And in forward or lateral displacements we have to take care not to miss the existence of effusions in the pleura, of contraction of one lung, or of mediastinal tumours. Marked displacement is noted in six of our cases, in one forward and to the right, in four downward and to the left, in one downward only, causing strong pulsation in the epigastrium.

Cardiac murmurs of the base must be numbered among indications of importance. Double basic murmur is noted in eight cases, systolic murmur only in three, diastolic only in one. Incompetence, at least, of the aortic valve is likely to be associated with aneurysmal dilatation of the first part of the aorta. But there are two conditions in which it is possible that basic murmurs may be due to affections of the pulmonic valves. First, dilatation of one of the sinuses of Valsalva may, without interfering with the efficiency of the aortic valve, press upon and deform the pulmonic valve in such a way as to give rise to murmurs. According to observers who have met with such cases, the characters of the murmurs so produced are so like those of aortic murmurs that they are readily confounded therewith. The presence or absence of the water-hammer pulse will, however, be a great aid to us in arriving at the true nature of the case. None of the cases here recorded illustrate the difficulty. In the second place, aneurysmal dilatation of the pulmonary artery, a condition, indeed, of rare occurrence, may give rise to basic murmurs. Case 17 may be here briefly quoted. A very anæmic woman, aged 34, was admitted with severe pain in the epigastrium, not affected by food. She had

twice vomited blood in large quantity, after exertion, and had on each occasion experienced violent palpitation. There was obvious pulsation, with tenderness in the epigastrium. The thorax was much deformed by deep curvature of the spine, backward and to right, and by projection of the sternum and of the ribs over the region of the heart. The impulse of the heart was felt two inches below the nipple, in the nipple line, and pulsation extended from this point upwards to the second left interspace. When the hand was placed over the region thus included the movements of the heart were felt, accompanied by systolic thrill. The cardiac dulness extended vertically as high as the first space, transversely from the nipple line to mid-sternum. A loud whirring systolic murmur was heard at the apex, and a harsher systolic murmur at the base, chiefly at the second left interspace. Pulsation was observed in the veins of the neck, and a thrill was felt in the supra-sternal notch. The examination suggested the idea that the deep backward curvature of the spine allowed the left lung to fall back so as to expose the heart. The curvature, however, was not a congenital deformity, having been brought about by an explosion in a cartridge manufactory seventeen years before, when she was buried in the ruins, and, besides sustaining injury to the spine, had her thigh broken. She had suffered from palpitation before this, and from some dyspnœa since, but her more acute symptoms had lasted only three weeks. I came to the conclusion that she had aneurysm, but could not satisfy myself as to its locality, whether in aorta or pulmonary artery, on account of the disturbance of the normal topography of the chest by the curvature, but inclined to convict the pulmonary artery, on account of absence of water-hammer pressure. She died of repeated hæmatemesis, and at the post-mortem examination was found to have congenital as well as acquired malformation. The inter-auricular septum was partially deficient; the pulmonary artery and its primary trunks were greatly dilated; the pulmonary valve perfect, but the orifice enlarged; the aorta reduced in size; the left ventricle small; the mitral valve thickened and its orifice contracted. The third lobe of the right lung was rudimentary; the left had fallen back, so as to leave the heart completely exposed in the narrow projecting left half of the chest-front. The liver, spleen, and pancreas

were also transposed. The stomach presented the cicatrix of an old ulcer, but no recent ulceration. It was much ecchymosed.

Pericarditis was observed in five instances, going on in one to considerable effusion, in another to adhesion.

The arteries may help us in several ways towards accurate diagnosis. First, they may or may not be obviously degenerated; second, they may exhibit the water-hammer pulse; third, they may present unequal pulsation on the two sides of the body, or in the upper and lower extremities respectively.

1. They are noted as being degenerated in four cases, this being estimated by their thickness, with hardness, dilatation, tortuosity, ruggedness, and undue mobility in their beds; as tense, hard, and tortuous in Case 1, where advanced Bright's disease coexisted with aneurism.

2. Water-hammer pulse was noted in five cases.

3. Inequality of the pulse on the two sides was observed in seven cases, the right being stronger in four, the left in three.

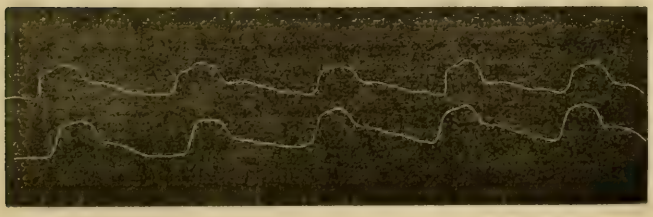
The difference between two radial pulses with arteries of the same size is not always an easy matter of determination. In many cases I have used the sphymograph for purposes of comparison, as has been done by Dr. Waters, and I here subjoin comparative tracings taken under equal pressures from the two

Sphygmographic tracings taken with equal pressure.

1. From left radial artery.



2. From right radial artery.



radial arteries of a patient at present under care with suspicion of aneurysm of the ascending aorta. In one case of abdominal aneurysm the pulse was much feebler in the lower than the upper extremities.

The veins of the neck presented a marked abnormity in five cases. In one already mentioned the veins pulsated with the systole of the heart. In two the veins of both sides of the neck were permanently distended, and did not vary with the movements of respiration. In one the veins on the right side only, and in one the veins on the left side only, were thus affected. The indications in these several cases were clearly of diagnostic value as regarded the size and the locality of the tumour. It is chiefly in large aneurysms, or in aneurysms affecting the transverse part of the aorta, or upper parts of the ascending or descending parts of the arch, that these effects of pressure upon the large veins are apparent. As a rule, in my experience, the distensions of these veins are more marked where there is solid mediastinal tumours than where there is aneurysm.

A beaded state of the superficial veins of the arms and trunk is sometimes quoted as associated with aneurysm. This was very marked in three of my cases. In one, where the aneurysm was large and situated in the ascending aorta, the veins of the front of the chest and right arm were distended and beaded, the veins of the neck not being affected. In one case of enormous aneurysm of the arch, the veins of both arms were beaded, those of the neck, at first unaffected, becoming permanently distended at a late period in the case. In one case of deep-seated aneurysm bulging from the arch posteriorly the veins of the arms were beaded, and the veins of the neck permanently distended on both sides.

A difference in the size of the pupils is now generally recognised as one of the signs of thoracic aneurysm, though it may certainly be produced by intra-thoracic tumours of other kinds. The difference is mostly due to the contraction of one pupil, and this, again, is related with hyperæmia of the same side of the face. The pressure of the tumour upon the sympathetic in the lower part of the neck or uppermost part of the thorax produces vaso-motor paralysis on the same side, of which the hyperæmia is the result.

With the contraction of the pupil other effects of active

hyperæmia may often be noticed, such as a general excess of fulness and turgescence of the skin, watering of the eye, local sweating, and rise of temperature. The last-mentioned phenomenon may sometimes be recognised by the hand, but it is readily demonstrated by the use of comparative surface-thermometers. These should in such cases be applied only for a short time, the object not being to ascertain the actual temperature, but the comparative heating power of the surfaces.

An exposure of two minutes, the thermometer being applied to exactly corresponding parts, will generally show an excess of at least 3° to 5° Fahr. on the side of the contracted pupil. Such a difference was regularly seen in the case of C. C— when not under the influence of ergot. The use of the thermometer is here no doubt partly an interesting experiment, but it has some diagnostic value. In certain cases of aneurysm it may be doubtful whether a difference in the size of the pupils be due to paralysis of muscular nerves, dependent on intracranial mischief, or of vaso-motor nerves, dependent on intrathoracic tumour. A patient at present under my care at St. Thomas's[1] has a well-marked aneurysm of the transverse part of the arch of the aorta. She has paralysis of the left recurrent laryngeal nerve; has had paralysis of the right arm with aphasia, and has imperfect movement of the left side of the mouth. Her pupils are unequal. To which of the two kinds of paralysis—both evidently present—is this due? If the vaso-motor system be in fault we may expect a large excess of heating power on the side of the contracted pupil—the right. This proves to be the case, the right cheek in several repetitions of the experiments with reversed thermometers, always raising the mercury 5 or 6 degrees above the point reached on the left side.

Dr. Cockle has recorded a case in which the contraction of the pupil caused by an aneurysm disappeared on the bursting of the sac. I have to record an instance of a variation in the state of the pupil following, apparently, variation in the pressure exercised by the aneurysm.

S. H—, a woman, æt. 50, had the physical signs of aneurysm of the transverse aorta extending to the left. The left pupil was sometimes smaller, sometimes larger, than the right, and

[1] Since dead. See Case 17.

the temperature of the cheek showed corresponding alteration. In a long series of observations it came out that the left pupil was smaller when the patient was most distressed and showed strongest signs of embarrassment in the circulation,—when, in fact, she showed the signs attending the greatest distension of the sac. That the paralysis of the sympathetic should be best marked when the pressure on it was greatest is what might have been expected. But the reversal of the proportion between the two pupils requires explanation. If the right pupil at such times became contracted we must suppose that the tumour in diminishing shifted its pressure from one side to the other. If the left pupil became relatively large instead of relatively small, the most reasonable supposition is that the sympathetic on the left side was exposed to just enough pressure or irritation to excite it, and to cause vaso-motor contraction instead of dilatation. There was no evidence of change in the position of the tumour, and, therefore, the other alternative is to be preferred. Speaking generally, we meet with few instances in which the pressure of tumours on the *trunks* of nerves produces muscular spasm, for the asserted instance of the recurrent laryngeal is a subject of debate; so that if pressure was the cause in this case, a ganglion, the lower cervical, was probably the seat of irritation. Dilatation of the pupils followed, as has been already stated, the administration of ergot in the case of C. C— and others. Both pupils appeared in the case of C. C— to be affected, and, although they differed in size before, the difference was much less afterwards. *Primâ facie* the difference might have been expected to be increased. But what is very curious is that in the cases of D. F— and C. C— the temperature relation was reversed after the action of ergot, the cooler cheek becoming the hotter by several degrees. Although this observation has now been made for some time the explanation has only occurred to me since the above lines have been in proof. But I have now an explanation to offer, which, if the current views of the results of paralysis of the sympathetic in the neck are correct, shows that the phenomenon ought to have been expected. The effects of section of the cervical sympathetic are very fully set forth by Brown-Séquard in his 'Physiology of the Central Nervous System.' According to the table on p. 145 they include besides, and chiefly as a conse-

quence of, dilatation of arteries, an elevation of temperature on the same side of the face and a general increase of all vital activities. Two points bear specially on our question: 1, "the contractility of blood-vessels is greater and lasts longer there;" 2, "after poisoning by strychnia the first convulsions take place" there. If the action of ergot be earlier shown on that side of the face which corresponds with the compressed sympathetic, and the blood-vessels on that side respond with increased force, it must follow that this side will become speedily anæmic instead of hyperæmic, and that the pre-existing thermal difference between the two sides will be reversed.

Inequality of the pupils was observed in ten cases. In six the left was contracted, in three the right, in one the contraction alternated. Equality of the pupils is distinctly noted in the remaining cases. Analysis shows, as might have been expected, that the pupils are affected when the aneurysm affects the higher part of the arch, not when the lower part of the arch is alone involved, unless an exceedingly large sac have been produced; and that the contracted pupil belongs to the side on which the chief bulge lies.

Sweats localised to the face are noted in one case only. In this case the aneurysm was of the transverse aorta, and was of great size. Both pupils were contracted equally till late in the progress of the disease, when the right was distinctly smaller than the left. No corresponding change in the distribution of the sweating was observed.

The symptoms connected with the respiratory organs next come before us.

Dyspnœa, as a matter of complaint on the part of the patient, is usually one of the first symptoms by which attention is directed to the detection of thoracic aneurysm. It was present as a permanent symptom in ten cases, on exertion only in three, in paroxysms mainly independent of exertion in three. The paroxysmal dyspnœa was associated in two cases with paralysis of the left recurrent laryngeal nerve, demonstrated by the laryngoscope. The same nerve was paralysed in one case of permanent dyspnœa. In none of the cases was the right recurrent laryngeal nerve affected.

The expediency of attempting to relieve by tracheotomy the dangerous, sometimes continuous, sometimes paroxysmal,

dyspnœa occurring in conjunction with paralysis of the recurrent laryngeal nerve has been carefully discussed in a former volume of the 'Reports,' by my former teacher and present colleague, Dr. Bristowe, to whose accurate observation, patient analysis, and unbiassed judgment, we in St. Thomas's owe so much. He comes to the conclusion that paralysis of one nerve without compression of trachea or of one of the bronchi does not call for the operation, and that when the dyspnœa appears to be dangerous, one nerve only being affected, the inference follows that there is compression of the tubes below, a condition forbidding hope of relief from the operation. It is indeed clear, from anatomical considerations, that simple paralysis of one half of the larynx does not narrow the orifice of the glottis sufficiently to cause danger to life, and also that the distension which is capable of paralysing a recurrent laryngeal nerve must almost certainly be such as will compress at the same time the trachea or a bronchus. Before the introduction of the laryngoscope into our practice the amount of laryngeal paralysis could not be estimated. But with the aid of this instrument we are now, of course, able to see whether the paralysis be single or double, and whether there be thickening of the vocal cords. And if, in any case, we find double paralysis, or much swelling of the cords associated with unilateral paralysis, we may be justified in resorting to tracheotomy for the relief of paroxysmal dyspnœa, taking the chance, certainly the somewhat remote chance, of the freedom of the tubes below. A case of incomplete bilateral paralysis of the abductors, which my accomplished friend Dr. Félix Sémon gave me the advantage of seeing, bears in a most interesting way on this point. A gentleman had incomplete bilateral paralysis of the abductors, with continuous dyspnœa, sometimes increased by paroxysmal attacks. Observation with the laryngoscope showed, that the chink of the glottis during attempts at deep inspiration remained so narrow that there was enough in the larynx to account for some dyspnœa, though scarcely enough to account for the great intensity of this symptom. The physical signs of thoracic aneurysm were not decidedly present, but from the symptoms it was fair to infer that either an aneurysm or a solid tumour was pressing on the recurrent nerves within the chest. Seeing, however,

that there was so much laryngeal obstruction, Dr. Sémon and I came to the conclusion that it would be right to perform tracheotomy. The operation gave immediate relief. The paroxysmal aggravations ceased, and for ten days the patient was fairly comfortable. At the end of that time he died suddenly from hæmorrhage. At the post-mortem examination a large aneurysm was found projecting from the posterior part of the transverse aorta, compressing both recurrent nerves, the left bronchus, and the œsophagus, into which it had ulcerated far below the position of the cannula, so giving rise to the fatal hæmorrhage. It is clear that the operation was useful, in giving great immediate relief, and that it in no way hastened the fatal event. But it is almost only where both nerves are involved that such a course is justifiable. There is, however, one consideration here arising which may be allowed to modify the stringency of the rule laid down. Dr. Sémon has pointed out to me that the paralysis produced by compression of the recurrent laryngeal nerve is not always of the same distribution. Sometimes, as in Case 15, the paralysed cord remains in the position of adduction; sometimes, as in Case 18, it remains in the cadaveric position, intermediate between adduction and abduction. What may determine the difference I do not know, and will not attempt here to discuss; but it is clear that if with an adducted left cord there be much swelling of the parts around the orifice, there may arise sufficient dyspnœa to render tracheotomy necessary, even though only one cord be paralysed. In this case we must depend upon the information to be obtained through the laryngoscope.

The dyspnœa accompanying aneurysm may, again, be dependent upon pulmonary affections as well as upon cardiac and arterial changes. We may for a moment turn our attention to the inflammation, often destructive, of lungs and pleuræ, common in association with aneurysm as with other intrathoracic tumours. The subject has been well discussed by Dr. Bennett in his work on such tumours. As he points out, the inflammatory affection of lungs has been attributed to direct pressure on the lung substance, to compression of bronchial tubes, to blocking of blood-vessels, and to pressure on pneumogastric nerve and pulmonary plexus. The most destructive forms of inflammation occur where either a large bronchus has been obstructed,

or where the pressure has implicated the pneumogastric and pulmonary plexus. Dr. Bennett refers to a suggestion of Sir William Gull hereto relating, and it may be well to quote the concluding words of Sir William Gull in his paper in the 'Guy's Hospital Reports' (third series, vol. v, p. 315):—"The chief point worthy of note in the physical diagnosis is that when the paralysed bronchi become choked the respiration in the part is greatly enfeebled, if not altogether absent, and hence there are no indications, from the entrance of the air, of the state of the pulmonary tissue. There may be dulness on percussion, absence of vocal murmurs, and immobility of the chest, not because there is effusion of blood or some cancerous or other growth, but because the bronchi are obstructed and immobile and the tissue of the lung consolidated."

From among my cases I may quote one in particular, which illustrates these remarks. F. P—, a sailor, who had had acute rheumatism in this country, and ague and dysentery in China, and who also stated that two years before he had been greatly distressed in his breathing after violent exertion in lifting a weight, was admitted to St. Thomas's Hospital complaining of dyspnœa, hard grinding pain extending through the chest from sternum to spine, and inability to lie on the right side. He was found to have some pulsation visible at the end of expiration over the manubrium and a little to the right of it. There was dulness over this region, two and a half inches wide, and over the lower part of this area a soft systolic murmur could be heard, while loud tracheal respiration was audible over the whole area. The heart appeared to be enlarged. The left lung was dull over its lower four fifths, tympanitic at its apex, particularly in front, down to the lower border of the second rib. Over all the dulness the vocal thrill was strong, except for an inch or two at the base. Loud amphoric breathing existed at the apex, tubular breathing over the rest of the lung, and, with other signs of effusion in the pleura, friction sounds were heard a little above the base. After a day or two the apex became absolutely dull on percussion, and here and elsewhere large crepitations became audible, with whispering pectriloquy. Although the history and many of the physical signs pointed to aneurism, I was in much doubt on the question of tumour, the pulsation being slight, the murmur faint, the diastolic

shock faint, and the tracheal respiration excessively loud over the dulness. Under these circumstances the President of the College of Physicians, who is one of our consulting physicians, was good enough to examine the case with me. He also felt that a decided opinion could not be formed, but inclined to the view of new growth. After two months the patient began to expectorate much purulent matter, and although the physical signs of effusion had not to my mind increased, exploratory punctures were twice made at different points of the left side, with the result of bringing away on each occasion a little thick, green, offensive pus, followed by a little blood. A strong pulsation was communicated to the needle, introduced an inch and a half, and the sputa were afterwards tinged with blood. During three months of lingering illness the mischief remained limited, but with every sign of ingravescence; the temperature was raised irregularly, often to 103°, and the patient was delirious for two months previous to his death, eight months after admission.

At the post-mortem examination, the end of the first, the whole of the second, and the beginning of the third part of the arch of the aorta was found dilated into a large, irregular, aneurysmal sac, measuring five inches in depth from before backwards. The front wall of this was lined by a very thick and firm pad of coagulum, large enough to explain the masking of the ordinary physical signs, and perhaps the excessive conduction of tracheal sounds. The left lung was compressed, particularly at its root; its parenchyma was solid, but broken down at many points into large irregular gangrenous cavities; the tubes were congested and dilated; the left pleural cavity was entirely obliterated by adhesions. From the dissection it appeared that there was no obstruction of bronchi or of vessels, and compression of the lower end of the pneumogastric and pulmonary plexus, which clearly existed, seems to me the best explanation of the destruction which had occurred in the left lung. The affection of the pleura was here probably but a direct extension of the pulmonary inflammation. But in other cases the history indicates that mischief begins in the pleura, sometimes apparently as a result of direct pressure; but direct pressure will not always explain the occurrence. In more than one case of aneurysm of the ascending or transverse part of the arch of the aorta, I have witnessed the

sudden occurrence of violent pain over the lower ribs and spaces, followed by pleurisy and pneumonia. For instance, J. W—, now in St. Thomas's Hospital, had, when admitted, the signs of aneurysm of the ascending and part of the transverse aorta, with aortic regurgitation. After fourteen days' stay in the hospital he was attacked by violent pain in the lower part of the back and rigors, followed by rise of temperature. When this had lasted five days the physical signs of pleuro-pneumonia appeared at the left base. He now improved in his general appearance, and at the end of another ten days the lung was clear again, the pain having also disappeared. It became here a question whether a new aneurysmal tumour was forming lower down in the aorta. But no other signs of such formation existed. Before making further remarks, I will refer to two other cases in which violent pain over the lower intercostal spaces has been related with aneurysm of the arch, and has been followed by inflammatory affection of the pleura at the seat of pain. It occurs to me as a possible solution that the intercostal nerves are the medium of excitement in these instances. We know that intercostal neuralgias are associated with trophic changes of the skin in herpes zoster. In one instance at least in my own practice I have found physical signs of pleurisy at the same time. This was then—and is now —an interesting subject to me, and it is one on which perhaps some of my readers may have information. One of the most plausible explanations of the trophic changes of the skin in zona is that of Bärensprung, who attributes them to irritation of the ganglia of the posterior roots of spinal nerves. In harmony with this I would suggest the possibility that irritation of one or more of these ganglia by eroding aneurysm are the causes at once of the intercostal neuralgia and the trophic changes in the pleura. A very moderate downward extension of the aneurysm allows of erosive pressure over the fifth and sixth vertebræ, and the oblique relation of the ribs would bring the peripheric terminations related with the irritation to the point where such pains are most commonly noticed, that is, to an area below the apex of the heart. Since the above was written the fatal termination of Case 14 has enabled me to verify this inference. The patient when admitted complained of violent pain in the fifth and sixth spaces

near the apex of the heart, and had physical signs of pleurisy over the lower anterior chest on the left side. With this he presented indications of aneurysm of the arch, the symptoms including paralysis of the left recurrent laryngeal nerve. At the post-mortem examination a large aneurysm was found deeply eroding the bodies of the third, fourth, and fifth dorsal vertebræ, and the upper part of the sixth, the eroded surfaces forming the posterior wall of the aneurysmal cavity. On the left side all the tissues adjoining the vertebræ were inflamed and ecchymosed, and the intercostal nerves were much swollen and morbidly changed; these conditions extended inward, so as to affect the ganglia of the posterior roots. The left lung was much compressed by the aneurysm, but not seriously altered in its structure. The pleura was adherent, and the lung beneath solid at the seat of pain, the inflammation here existing having plainly not been an extension from the compressed portion of the lung. (See Case 14).

In the diagnosis of thoracic aneurysm, the physical evidences of compression of a part of a lung adjacent to a suspected sac legitimately swell our means of inference. A diminution of resonance and of respiratory murmur, and an increase of vocal thrill and resonance over an apex or root of lung, may guide us in ascertaining the direction of extension of the tumour. When an apex—more commonly the left—is thus affected, it is necessary to avoid falling into confusion between the effects of compression and of tubercular deposit, for it is well to remember that phthisis is sometimes present together with aneurysm. But in compression the dulness is either uniform or more marked in the neighbourhood of the aorta, fading gradually from that region outwards; in phthisis the dulness is most complete at the extreme apex, fading thence downwards, unless the deposit be very abundant. Where there is massive deposit or complete compressional consolidation, we must fall back upon the history of the case and concomitant symptoms.

Dulness of the right apex due to compression and subsequent inflammation was observed in two cases; partial consolidation of the left apex in five; collapse of the right lung in one; congestion of the right lung in one; consolidation of the lower half of the left lung in one; gangrene of left lung in three; pulmonary apoplexy in one; œdema of the lungs in one.

Recent pleurisy was noted in two cases; large adhesions, chiefly on the left side, in three; large effusion in pleura in two; empyema, left side, in one.

Pain or difficulty in swallowing as a symptom of aneurysm is common, and marks either a large aneurysm or an aneurysm having a central position. In many cases where the physical signs are not very marked, owing to the aneurysm not having come into close contact with the anterior wall of the chest, we may look to this symptom as one among several indications of backward extension. It was present more or less in ten cases.

The pain very commonly attending the growth of aneurysm may be either referred directly to the parts invaded, or may be distant from the aneurysm when nerve trunks are involved. Thus, pain is felt at the sternum or epigastrium, or one side of it, when the projection is forward or lateral. Constant deep-seated pain in the back is held to be a sign of backward extension with erosion of vertebræ; pain in a side marks pressure on intercostal nerves; pain in an arm of pressure on the lower part of the brachial plexus; and, as in the case of other symptoms, the existence and distribution of pain afford indications of the existence and position of the tumour. Marked pain is noted in 13 cases, distributed as follows:—Sternum, 4; left side of sternum, 1; sternum, back, and left side, 1; left side, 3; root of neck, 1; epigastrium, 1; shoulders, 1; right arm, 1.

Excessively rapid emaciation occurred in one case. The conditions were such as were likely to have involved pressure on the thoracic duct, but the existence of such pressure was not verified at the post-mortem examination. Empyema, with much fever, formed a prominent complication.

Decided insanity, lasting from three weeks to three months, formed a part of the last train of symptoms in four cases. This occurrence, a consequence rather than a symptom, has no great diagnostic interest. But it has relation to a question of no small seriousness—that of the extent to which insanity is produced by causes primarily external to the brain.

That I may not be supposed to have overlooked the use of the ophthalmoscope in the diagnosis of aneurysm, I mention here that I have not been able to detect in any of my cases pulsations in the retinal vessels.

OPERATIONS FOR RETENTION OF URINE

DEPENDENT ON

STRICTURE OF THE URETHRA:

A Clinical Lecture delivered at the Hospital in 1852, and now reprinted from the 'Medical Times and Gazette' of that year:

By JOHN SIMON, C.B.,
CONSULTING SURGEON TO THE HOSPITAL.

Prefatory Note.

Dear Mr. Editor,—

Honoured by your invitation to contribute a paper to the present series of our 'Hospital Reports,' but finding to my regret that I have nothing of recent work wherewith to respond to the invitation, I gladly avail myself of your willingness to print in the 'Reports,' and thus to identify as a product (however humble) of our School, a certain Clinical Lecture which I gave in the Hospital more than twenty-eight years ago, and which, published at that time in one of the London Medical Journals, may perhaps be credited with having had influence in the branch of practice to which it relates—the *Surgical Treatment of extreme cases of Urethral Stricture;* and as your reprint of the Lecture will be without change from the original, it may be that the following little explanation will be proper to accompany it.

At the close of the first fifty years of the present century, the general rule of surgical practice, with regard to unyielding cases of strictural retention of urine, was, that the surgeon in last resort must proceed to the so-called *Perinæal Section* which had then come into vogue, and which claimed as its distinctive feature and merit that it included *Division of the Stricture.*

I am not aware that before 1852 any dissent from that rule of practice had been publicly expressed; but early in 1852 protests against it

were raised simultaneously, though independently of each other, by my much esteemed friend, Mr. Edward Cock, and myself: by him, from Guy's Hospital, in an admirable paper read before the Royal Medical and Chirurgical Society on April 13th; and by me, from St. Thomas's, in the present Lecture, which was published in the 'Medical Times and Gazette' of April 10th and 17th.

As against the then popular Perinæal Section, Mr. Cock and I were quite at one,—equally contending that, in cases of the described sort, the surgeon had better limit his immmediate aim to providing a proper artificial outlet for the urine, not making any attempt at division of the stricture, but leaving the stricture, at least for a time, unmolested by surgical instruments as well as without pressure from the bladder. Thus far Mr. Cock and I were agreed; but beyond this point, we differed. In answer, namely, to the question, in what way would we provide for the urine the artificial escape which we recommended, Mr. Cock's advice was TO TAP THE BLADDER THROUGH THE RECTUM, while mine was TO OPEN THE URETHRA IN FRONT OF THE PROSTATE; and each of us devoted most of his paper to advocating and illustrating the particular operation which he preferred.

Mr. Cock expressed in his paper a most unfavorable opinion of the alternative which I was recommending, and which at an earlier date he had himself in some instances tried; but I have the pleasure of knowing that he afterwards became convinced of its advantages; and they indeed could not be better stated than they at last are by himself in a paper which he contributed in 1866 to the 'Guy's Hospital Reports.' So effectual has been Mr. Cock's conversion, that the alternative which he in 1852 denounced has now at Guy's Hospital got to be familiarly called by his name; and I even observe that two of the present surgeons of the Hospital—Mr. Bryant in his 'Manual for the Practice of Surgery,' and Mr. Howse in the last volume of the 'Transactions of the Clinical Society,' formally write of it as "Cock's operation."

I need hardly say that no living surgeon can pretend to have invented the operation of cutting from the perinæum into the membranous portion of the urethra. Speaking of it as mere anatomical operation, we could perhaps not easily name the time when it was unknown. As a way to relieve the bladder, it must at any rate I should suppose have been often tried in this country before the present century; while on the Continent it seems to have been known to surgeons as one of the forms of "la boutonnière." * It will be seen that towards the close of

* That old French term seems to have covered all the various perinæal operations which were practised for retention of urine: such as (1) operations in which the bladder was tapped or cut into from the perinæum, and (2) operations more or less of the intention of our subsequent perinæal section with division of the stricture, as advocated in Mr. Grainger's essay of 1815, and (3) operations in which the urethra behind the stricture was made a way for catheters into the bladder from the perinæum. The scanty historical references in the lecture were meant only to refer to British surgery.

my Lecture I mentioned some notices of the operation by contemporary British surgeons; and had I at the time been aware of it, I might with advantage have adduced a fuller and more applicable quotation from the pages of Sir Charles Bell's last surgical work, his 'Institutes of Surgery,' published in 1838. Discussing in that work (vol. i, p. 305) the question "how the bladder is to be relieved in case of total obstruction," he says that of late years he has rejected all other methods than the following:—"Put a catheter or a sound down to the stricture and give it to an assistant; introduce your finger into the rectum, and feel the prostate. Thus prepared, take a sharp-pointed bistoury, slightly curved, plunge it into the perinæum just anterior to the anus, carry it towards the face of the prostate. The finger in the gut, the knife is carried in the outside of the gut. When the point has arrived at the prostate, the hand is to be depressed, and the point thrust into the urethra. It is to be brought out, cutting along the membranous part of the urethra, and at the same time in a manner to open the integuments of the perinæum largely. The urine spouts from the incision, and the patient feels instant relief. The patient from this moment being safe, and free without that torturing dissection which we have seen so long practised of cutting into the stricture, you may put him into bed or finish the operation. I prefer seeing him recruited before I proceed further. You may destroy the stricture at your leisure (because there is now no danger to the bladder) and having passed the catheter through the stricture you divert it into the bladder, a matter of no difficulty. There is no greater triumph than a cure thus conducted." If Sir Charles Bell's illustrious life had lasted him to re-edit that striking passage, and to enrich it with further fruits of his ever keen spirit of observation, his genius, I feel assured, would have dealt still more decisively with "that torturing dissection" which purports to divide the stricture, would not have remained content with merely reserving it for "leisure" as something to "finish the operation," but would unequivocally and finally have set it aside as a mischievous inheritance from his predecessors.

It may be proper for me to add that the practice which is recommended in my Lecture of 1852 is that which I continued to recommend and to follow during all the long remainder of my teachership in the Hospital, and that all subsequent experience strengthened my opinion in its favour. In reading the Lecture again after the lapse of so many years, I of course see points where I believe I could improve it; but the only one, which I think worth present notice, is, that something distinct ought to have been said about the strictures which are virtually incurable. When the urethra is opened behind a stricture which has caused retention of urine, the degree in which the stricture itself is benefited by that relief is not the same for all sorts of stricture. It has its maximum in proportion as recent inflammatory swelling or spasm had contributed to narrow the canal: it has its minimum in proportion as the stricture is constituted of cicatrix: and this minimum becomes zero in

the comparatively rare cases where a length in the continuity of the canal has become permanently lost in solid scar. In cases of the last-mentioned sort, and in some others which nearly approach it, the permanent mechanical obstacle remains of course unaffected by the urethrotomy; but the operation will have supplied the best palliative which surgery is able to afford; for through the straight surgical opening, kept free by the regular use of a short elastic catheter, the patient may for the rest of his life continue to pass urine with comparatively little physical discomfort.

I am, dear Mr. Editor,
Yours very faithfully,
JOHN SIMON.

August, 1880.

FRANCIS MASON, ESQ.
&c., &c., &c.

LECTURE.

GENTLEMEN,—When your patient, by reason of a stricture in the urethra, is unable to empty his bladder along the natural channel, and when you are foiled in your utmost endeavours to effect this for him by catheterism, or by the employment of other appropriate means,—in that emergency, when it arises, how are you to give an artificial vent to the urine? I purpose illustrating to you, in the present lecture, what I consider the right answer to this question. I shall explain to you the general principles which determine the surgeon to make artificial openings into the urinary passage; and I shall give you the *rationale* of a line of treatment, which you have seen me adopt successfully in various cases, as a substitute for the operations more commonly practised.

First, however, let me impress on you that, in the hands of a skilful surgeon, the emergency to which I advert is not a frequent one, and that you must not too readily admit its existence as your ground for the operations in question. I cannot now go into the whole subject of inveterate stricture; but, if you have given attention to the routine of hospital-practice during a few months, you must know that, in an immense majority of instances—even of very old, very

tight, very obstinate stricture, provided other conditions are absent to which I shall presently refer, we succeed in giving relief without recurring to the last expedient of knives or trocars.

The necessity for making an artificial opening into the urinary passages may be established, for such cases as we are considering, under any one of these three conditions, viz.:

(1) All means for procuring the natural discharge of urine may absolutely fail. (2) Urgent constitutional distress may render it dangerous to temporise, as in attempting the gradual dilatation of the stricture. (3) The urethra may have ulcerated at the seat of stricture, and may be allowing extravasation of urine to occur, with its attendant wide-spread mischief.

1. As regards the first condition, I believe it to be of the very utmost rarity. Taken simply and singly, it has never yet driven me to the necessity of operating. The local state of stricture which determines complete retention of urine is a compound one. Though the canal be permanently so small as to make urination very laborious, perhaps allowing the patient to effect it only *guttatim*, yet that which brings him to a dead lock is a temporary work. The mucous membrane is swollen by some additional congestion of blood, or the canal is obliterated by muscular spasm. And over this temporary aggravation we have great control. A full dose of opium, aided, perhaps, by leeches to the perinæum and by the hot bath, or in some cases preceded by the action of a brisk purgative, will generally give relief; and thus, even if we cannot extemporaneously get a catheter into the bladder, we can re-establish the patient in his previous state of dribbling urination; we can ensure that his bladder shall partially evacuate its contents; and we can gain time for that gradual dilatation of the stricture which will bring more complete and permanent advantage. With these resources in your hands, and with an expert, but, above all, a gentle and patient, management of the catheter, I can promise that you will scarcely ever find yourselves defeated in uncomplicated cases of retention of urine from stricture. Should that rare contingency arise, should your milder measures utterly fail, should the urethra remain absolutely impervious—letting in

no catheter, letting out no urine, then undoubtedly, as I have stated, this condition would establish a necessity—a legitimate and imperative and urgent necessity, for your making an artificial vent for the distended bladder.

2. The second specified condition for the performance of such an operation is a more frequent motive than the first. The stricture, though very close, may not be quite impervious; it may let enough urine pass to keep the bladder free from fatal distension; it may even (though this would be unusual) permit your smallest catheter to traverse it; yet with all this, your patient may be dying. He is an old man, perhaps, with a shattered constitution; he has been plagued with his stricture for years; it has been neglected or aggravated; his urine is fetid and full of pus; he has had constantly recurring rigors; his loins are painful and tender; every attempt at dilatation of his urethra gives severe suffering; his shiverings and sweatings have left him each day feebler; his weak pulse beats above 100 in the minute; his hands are tremulous; his tongue is getting dry; he is threatening to become typhoid—breaking down under the prolonged irritation of his local disease. You may entertain no doubt that, with time, you could dilate his stricture; but here exactly it is, that time is an ally you cannot reckon on. A fortnight or three weeks would be requisite for your endeavour to have any success; and far within that period you would have nothing but the dead body to catheterise. Here, obviously, there is urgent need for immediate and complete relief —for relief that shall at once put the man into a tranquil and painless state; and the establishment of an artificial outlet for his urine is the clear indication of treatment.

3. The third condition which I have stated to warrant the necessity of this proceeding, is that under which we most commonly adopt it,—where, namely, the urethra has given way behind the seat of stricture, and presents an aperture through which, at every contraction of the bladder, urine is effused amid the adjacent textures, exciting them to inflammation and gangrene. I need hardly tell you, that cases of this description are among the most urgent in surgical practice, and that the utmost promptitude of relief is requisite for the patient's safety. Though the stricture, so far as that

goes, may be of a kind likely to yield to gradual dilatation, yet, pending this slow process, what is to become of the urine? Is it to continue its destructive course of effusion amid living textures? Manifestly not; and therefore the local treatment resolves itself under two heads: first, to adopt such a course, relatively to the strictured and perforated canal, as will prevent any further extravasation of urine; secondly, to make such incisions as may be requisite for discharging out of the infiltrated tissues all their fetid accumulation of urine, pus, and sloughs. In seeking to fulfil the former of these indications, we find it necessary (as under the conditions previously considered) to make an artificial passage for the urine; and the operation, as I have said, has its most frequent necessity in the condition here adverted to. Out of six cases, which I shall presently bring before you, in which I was obliged to perform the operation in question, five were cases in which the urethra had given way, and extravasation of urine was in progress.

And now, gentlemen, suppose the necessity to be established for your giving an artificial passage to the urine;—suppose one of the three conditions to be present which I have stated to you; that you cannot procure any discharge whatever by the natural channel; or that your patient is suffering urgent constitutional distress from the insufficiency of such relief as you have procured him; or that the perinæum and genitals are beginning to swell with extravasation of urine;—now, what course have you to adopt?

The operation which for a great many years has been prevalent here, and, indeed, in most London schools of surgery, has been the following:—(1) A catheter or sound has been passed up to the seat of stricture, at or near the bulb of the urethra; (2) a long cut has then been made in the raphe of the perinæum, reaching down to the urethra, and opening it behind the seat of stricture; (3) the urethral incision has been prolonged forwards, towards the point of the catheter or sound, so as to split open the contracted portion of the canal; and finally (4) all impediments being overcome, a large catheter has been conducted along the urethra into the bladder, and there secured by appropriate bandages.

You will find this operation fully described in Mr. South's translation of Chelius, and spoken of as the practice of the Borough hospitals for the past thirty or forty years. And, if you wish to see the operation in its most favorable aspect, you cannot do better than observe it in Mr. South's hands, who has had great experience in the proceeding, and who executes it with all the care and patience which are indispensable for its success.

Professor Syme, of Edinburgh, who is a great authority in such matters, speaks of this operation as "protracted, uncertain, dangerous, and unsatisfactory." Looking to its average performance, I must say my experience would justify this censure. It is *protracted,* for the patient undergoes severe manipulation during a period, of which the mean would be twenty to thirty minutes. It is *uncertain,* for the division of a stricture or strictures to which one is so imperfectly guided, cannot be accomplished with facility: nor can one feel sure, under the most favorable circumstances, that one's scalpel has hit the exact line of a canal contracted (perhaps for an inch of its length) to such narrow dimensions as scarcely, if at all, to admit the smallest catheter.* It is *dangerous,* because, in addition to the sources of risk just adverted to, large hæmorrhage not unfrequently contributes to exhaust the patient; and further, because in many cases (as where the urethra is contracted throughout its whole spongy portion) a catheter cannot be maintained in the passage, without prolonging that state of pain and irritation which already have set life in jeopardy. And *unsatisfactory* it must be on all these grounds. For what can be more so, than to conclude a severe and dangerous operation with uncertainty as to whether one has accomplished that very object for which the severity and the danger were encountered?

These objections apply to the proceeding as practised by the best—I mean the most careful, operators. In other than good hands, it is a very horrid affair: metallic instruments are thrust in all directions; they leave the canal at one

* "Even under the most favorable circumstances, it cannot be otherwise than doubtful whether the stricture be properly divided; that is, whether the incision has passed through the narrow canal in the centre, or through the solid substance on one side."—*Brodie on Diseases of Urinary Organs,* p. 65.

place, and re-enter it, by perforation, at another; or they pass up to the hilt—one shudders to think where, and draw no water; the rectum, the prostate, even the bladder, undergoes injury in these violent efforts, and the patient is eventually sent to bed, it may be with his bladder unemptied, having his chance of cure sensibly diminished by the infliction of so much unnecessary mischief.

We cannot be surprised that many surgeons have taken refuge from the precarious chances of this operation in the comparatively simple and secure process of tapping the bladder by the rectum or above the pubes. I shall presently describe to you the operation which, generally speaking, I consider a far preferable alternative even to these. But, before examining their comparative merits, I have still something more to say in respect of the last.

Within these few years, Professor Syme has introduced a method of dealing with obstinate strictures, by dividing them on a director previously passed through the constriction; and you may ask whether the adoption of this manœuvre would be applicable to the cases we are considering, so as to remove the objections I have expressed to the operation of dividing the stricture without any such assistance? I think not. The cases heretofore treated by Mr. Syme's operation have not been cases where the primary consideration is to give immediate relief to a distended bladder, or to provide against advancing extravasation of urine; and in cases such as these there are generally circumstances which would render the director inadmissible. If the urethra is impervious to a small catheter, it is not likely to yield to this other instrument; if the canal has ulcerated, so as to communicate with infiltrated and sloughing tissues, or is riddled with false passages, the director would be not unlikely to prove a treacherous guide. Here and there one might find a case in which (supposing division of the stricture to be our desideratum) Mr. Syme's principle would admit of application; but, speaking generally, I may repeat that his proceeding relates to quite a different class of cases.

But, gentlemen, if that "protracted, uncertain, dangerous, and unsatisfactory" operation, which I have described, could admit of serviceable modification by Mr. Syme's proceedings,

there is yet another reason, I think, which would induce us to reject it.

The operation held its ground because of its alleged completeness. The notion of dividing (and therein *curing*) the stricture, at the same moment as one gave relief to the distended bladder, was indeed charming. But, of late years, surgeons have discovered, that this seductive completeness had in it a practical fallacy. The division of the stricture was the sheerest superfluity. Let the bladder be relieved any how, by the perinæum, by the rectum, by the pubes; merely let the stricture for a while be undisturbed by the constant irritation of urine urged against it from behind; and there speedily occurs a spontaneous permeability of the canal. The stricture wants no cutting. It loosens itself.*

So remarkably does this effect belong to the withdrawal of pressure from the stricture, that it arises, not only when the surgeon has made an artificial outlet for the water, but also under far less favorable circumstances; namely, where the urethra has given way behind the stricture, and where the bladder expends its chief expulsive force in driving the urine into surrounding textures. "The first effect of this mischief (says Sir Benjamin Brodie) is to relieve the patient's sufferings; there is no more straining, and the spasm of the stricture, no longer excited by the pressure behind, becomes relaxed, so as to allow some of the urine to flow by the natural channel." Further, in the very numerous cases where the endeavour to divide a stricture has been defeated by the difficulties I have adverted to, and where (contrary to the performer's intention) the operation has not advanced further than the stage of cutting into the bladder or urethra somewhere behind the obstruction, the same loosening of the stricture has been observed to ensue, as though it had actually been divided.†

Surely, it cannot be desirable to incur difficulties and

* [For a qualification which ought to have been made in this statement, see last paragraph of Prefatory Note.—J. S. 1880.]

† "In cases of stricture, if the stricture be so far forward that it be not involved in the wound in the perinæum, or by sloughing, if urine be extravasated, it generally relaxes so much that it can be cured by the ordinary treatment with bougies or sounds, during the reparation of the wound in the perinæum."—*Mr. South, in note to Translation of Chelius*, vol. ii, p. 436.

dangers in attempting to divide a stricture, when the same advantages spontaneously arise without that division being accomplished.

These considerations have led me to the modified perinæal operation, which you have seen me perform in various instances, and which consists simply in this.—I open the urethra by puncture, or by very small incision, immediately in front of the prostate gland. I run a short elastic catheter along this wound to the bladder. I leave the stricture quite untouched for ten days, more or less, during which the urine flows entirely by the perinæal catheter. At the end of this time, I find the stricture sufficiently relaxed for me to begin its dilatation with a middle-sized instrument; and I thus obtain all the advantages assigned to the severer and more difficult measure, while adopting an operation of extreme slightness and security.

I have already intimated to you that many surgeons, feeling the risks and difficulties which are inseparable from the ordinary perinæal operation, have chosen rather to tap the bladder, in such cases as we are considering, either above the pubes or by the rectum. Obviously, on the principles which I have stated to you, either of these proceedings might give very satisfactory results. The bladder would be effectually emptied, and the stricture relieved from irritation; supposing the urethra to have given way, diffusion of urine would be prevented; and neither of these operations can be considered very difficult or very dangerous.

If, therefore, my choice lay between the ordinary perinæal operation and these other expedients, I should not hesitate to prefer one of the latter. But the modified perinæal operation which I advocate is still simpler and safer.

I admit, for instance, that tapping the bladder through the rectum is not a very difficult or very dangerous operation. A man of ordinary skill can hardly bungle it. Yet it is not quite so simple a matter as driving your trocar into a hydrocele. It requires some practice and dexterity. I have known an able surgeon, in attempting it, make two successive stabs; the first *went by the side* of the bladder, the second *transfixed*

it. And I should doubt whether, even under the most skilful management, the peritonæum would always be so safe from injury as the advocates of the operation believe.

But assuming, for argument's sake, that the manipulation shall never miscarry by any such slips as these, I can still scarcely approve of the operation. To bore a hole through the rectum would seem, at first blush, a roundabout way of emptying the bladder. It strikes me as an awkward and unworkmanlike proceeding, to involve a second viscus unnecessary in the attempt to relieve a first. One would wish to minimise the injury of one's operation; and, if one can relieve the bladder equally well without wounding the rectum, if one can accomplish one's purpose by a direct cut through the common integuments or little more, surely one would argue *primâ facie* that the rectum should be let alone. For the wounding of the bowel cannot be a matter of indifference. The track of the trocar between the seminal vesicles must be the seat of irritation, not often perhaps to a serious extent, but certainly sometimes. Occasionally, no doubt, an abscess forms there, aided by a little infiltration of urine; and from such a beginning as this very multiplied mischief might arise and continue. I understand there died in this hospital, not long ago, a patient who, at some previous time, had undergone elsewhere the operation in question; and in whom the irritation occasioned by it had never subsided. There had apparently been formed (in the manner just suggested) an abscess between the two openings; urine continued to flow through the rectum, with extreme discomfort and tenesmus; and the man's health was undermined by this continued suffering and irritation. I repeat, therefore, that the rectal operation, as compared with the ordinary perinæal section, presents unquestionable advantages; but, as compared with the modified perinæal operation, it must be considered, I think, to have the disadvantage of inflicting unnecessary injury, and incurring unnecessary risks.

The supra-pubic tapping of the bladder is even easier of performance than the rectal operation, and has some other arguments in its favour. Indeed, there are cases, though not such as we are now considering, in which the bladder cannot be relieved by any other proceeding. Such are the cases in

which invincible retention of urine is occasioned by tumours of the prostate; for here, obviously, no perinæal incision would carry us beyond the obstruction, and the morbid growth would render tapping *per rectum* difficult or impossible.

But, as respects cases in which our necessity to operate depends on stricture and its consequences, I cannot think the supra-pubic puncture a desirable proceeding. The distance to which the contracted bladder retreats, so soon as its contents are discharged, is a matter of serious inconvenience. The areolar tissue between the bladder and the abdominal wall may easily get irritated by soakage of urine. The opposed edges of the recti would, in any such case, be an obstacle to the escape of the unhealthy accumulation. Further, notwithstanding the facility of the puncture, mischances have happened in its performance; and, both in the operation and afterwards, the posterior wall of the bladder has suffered from the trocar or the canula.

Reviewing the objections I have briefly stated, I cannot but give a decided preference to the modified perinæal operation, in all cases which admit its execution. The point of the urethra selected for the puncture is definite in its position. It is readily reached from the surface of the perinæum. No important parts intervene. The subsequent escape of urine is direct. The position of the catheter causes little inconvenience. The perinæal incision necessary for reaching the urethra is in nearly all cases required by accumulations of pus and extravasated urine. In such cases nothing is wanting to relieve the bladder but to deepen this incision into the urethra itself: a proceeding surely both milder and more obvious than if, after cutting deeply into the perinæum for pus and extravasated urine, one were to start *de novo* with a trocar, to tap the bladder by the rectum or above the pubes.

I now proceed to bring to your recollection (for most of you have witnessed the cases) the history of several instances presented in our hospital practice, where I have been induced to perform the modified perinæal operation which I have described and recommended to you, and where the results have been remarkably good.

Case 1.—J. W., a lighterman, aged 55, of damaged general health, was admitted into Abraham's Ward, January 22nd, 1850. He had suffered from stricture for sixteen years; and during the last three years, had had a fistulous opening in the scrotum. Urine was discharged in the smallest stream, and only with extreme effort. His urethra was a string of strictures from end to end. Attempts were made twice a week to effect their gradual dilatation by bougies; but much suffering was caused, and little progress made. He had frequent rigors; his nights were restless; and he had little or no appetite. February 14.—The painfulness and sensibility of his urethra made it impossible to persevere in the use of instruments; and, though he was still passing urine, his quick, powerless pulse, anxious countenance, and dry, brownish tongue, showed that he was under great constitutional distress. The following day, at noon, when I saw him, he was worse; the pulse at his wrist was but just perceptible; his voice was barely audible; he was verging on the typhoid condition, and apparently had but few hours to live. Any severe operation was obviously inadmissible; I would not even let him be carried to the operating theatre, but had him placed on the table of the ward, secured in the lithotomy position. With a single puncture I guided my bistoury into the membranous portion of his urethra, immediately in front of the prostate; and then, as the urine flowed, carried a large elastic catheter along the wound into his bladder. He was immediately placed in bed, and stimulants were given him liberally and frequently. His relief was immediate; and, though for many days he continued in a most precarious condition (his life being additionally endangered by an attack of bronchitis) yet we succeeded in keeping him up, and, eventually, in restoring him to health. After a fortnight, the elastic catheter was withdrawn, and gradual dilatation of his strictures begun. He remained for a long while in the hospital, rather for his general health than on account of the local disease; and when he left, could retain his water as long as desirable, and discharge it in a full stream. Several months afterwards he came under my care again, on account of severe ophthalmia; I was then enabled to learn that he was quite free from inconvenience in his urinary organs.

Case 2.—M. N—, a fellmonger, aged 20, of impaired general health, and debauched, drunken habits, had been in the hospital nearly a month, when perinæal abscess and commencing extravasation of urine made an operation necessary. He had been admitted June 11th, 1850, having chancre and bubo, both in a sloughy state, and a stricture of the urethra at its membranous portion, which allowed urine to be passed only with great difficulty. Under proper treatment, his health had improved considerably; the sores had advanced in healing, and the stricture was being gradually dilated, when (July 4—8) severe inflammation was set up in the perinæum, accompanied by rigors and fever. On the 8th it was evident that suppuration had taken place, and the scrotum was beginning to swell. There was more constitutional distress. Having fixed the patient in a proper position, I made a free opening of the perinæal abscess, and deepened the incision behind, so as to open the urethra just in front of the prostate gland. Through this wound an elastic catheter was conducted to the bladder, and was let lie there for a week, during which no urine passed through the natural channel. At this time, all inflammation having subsided, the process of dilating his stricture was resumed. Three weeks afterwards (August 5th) he left the hospital, at his own desire, in good health, able to make water in a full stream, but with the closure of his wound not quite completed.

Case 3.—J. F—, aged 39, having retention of urine with tumefaction of the perinæum and scrotum, was sent to me from Norwood, January 17th, 1851, and was immediately admitted into Abraham's ward. He had suffered from difficult urination during little more than a year; but the evil had progressively increased, so that for the last six weeks his difficulty had been extreme, accompanied by violent straining and occasionally by the passage of blood. The bladder had been very irritable. During the last ten days he had had repeated rigors, and within the same period painful hardness and swelling had taken place at the seat of stricture. Complete retention had arisen on the yesterday, and fruitless endeavours had been made to introduce a catheter. On his admission I found that he had a good deal of chronic infiltration about the

scrotum; that there was a hard lump, exquisitely tender, reaching from the perinæum to the root of the penis; that he had a very close contraction of the urethra, commencing at its bulb; that his bladder was distended; and that he could only dribble out a few drops of urine. He was in great suffering, and it was requisite to relieve him immediately. The membranous portion of his urethra being opened with a straight bistoury, and a large elastic catheter introduced through the wound, about two quarts of urine were drawn off. A quantity of fetid pus escaped at this opening, as also at a second incision, which I thought it prudent to make in the scrotum. The cellular membrane appeared sloughy. His immediate relief was complete, and he recovered with no bad symptom. On the 18th, I ordered him a pint of porter; on the 19th a dose of castor oil; on the 20th four ounces of gin daily, in addition to his beer. On the 27th.—General health improving daily; tongue clean, appetite recovered, bowels regular; scrotum reduced to its natural size; the incision in it healed; little induration remaining in perinæum. Stricture examined—admits a middle-sized catheter, which, however, it was thought well not to press on to the bladder. 28th.—No inconvenience from yesterday's examination of the stricture. On the 31st, elastic catheter discontinued. Feb. 3rd, middle-sized silver catheter carried without pain through the stricture into the badder. 12th, catheter is being passed every other day; he makes water in a good stream; wound in perinæum disinclined to heal. March 12th, stricture quite well, urination quite natural, health quite sound, but wound fistulous—touched with actual cautery. April 12th, a few drops of urine still occasionally escape at the perinæum; hot wire again. April 21st, cured.

Case 4.—J. D—, aged 57, seaman, admitted July 7th, 1851, into Abraham's Ward; has had difficulty in discharging urine for twenty years; has never had entire retention, though often he has only been able to pass it in drops; during the last seven months his sufferings have much increased, and the scrotum and perinæum have been habitually tender and painful. A week before admission, he experienced a sense of something bursting at his fundament, and immediately after-

wards discharged a large quantity of pus *per anum*. On admission, scrotum large, red, tense, exquisitely tender; perinæum hard, painful, very tender; areolar tissue over pubes and lower part of abdomen getting infiltrated; little or no urine traverses the urethra, most of it escaping through the rectum with a large quantity of stinking, purulent matter. On careful examination, it appeared that this passage occurred in an indirect manner; namely, through a large abscess, which, lying between the bladder and rectum, and communicating with both, enabled the former viscus partially to discharge itself through the latter. The man's constitutional condition was all but typhoid. After some reflection, I determined that the urethral operation was his best chance of relief. Having fixed him suitably, I made a free incision in the raphe of the perinæum, venting a pint of fetid pus; sank my bistoury to the urethra, which I punctured at the usual spot; introduced there an elastic catheter, through which a wash-hand basinful of urine discharged itself at once—showing how insufficient had been the previous relief *per anum;* made two incisions at the scrotum and one at the pubes, into sloughy cellular tissue, full of stinking matter; and, having speedily sent the patient back to bed, gave him a glass of hot brandy and water, and warm dressing over all the inflamed integuments. 8th, a.m.—Has slept three or four hours during the night; has drunk eight ounces of brandy with water and some strong beef tea in the last eighteen hours; expresses himself as immensely relieved; discharge of urine through catheter abundant; general condition much improved. 10th.—Having shivered yesterday, and had pain in the scrotum during the night, another incision is made, which allows the escape of some confined fetid pus. 11th.—Much better; some sloughs of cellular tissue have been drawn from the several wounds; copious suppuration; no urine passes by the bowel. 17th.—Has continued to improve daily; appetite for solid food regained; elastic catheter withdrawn from perinæum; small silver catheter passed through stricture. 24th.—Has had painful diarrhœa for some days, requiring the use of krameria with opium; strictures dilating comfortably under use of catheter every three days. 31st.—Diarrhœa gone; general health much improved; takes food well; catheter left in the

urethra for some hours on the days when it is employed. August 16th.—No. 8 catheter can readily be passed into the bladder. 23rd.—No. 12 passed into bladder; wounds in scrotum and pubes quite healed; general health quite re-established. Sept. 8th.—The opening in the perinæum having not yet completely closed, and still giving passage to urine, I ordered him to refrain from making water himself, and to have a catheter passed for him thrice a day, so that the fistula might be undisturbed by urine. This plan appeared to succeed, for, on Sept. 18th, he left the hospital perfectly cured.

Case 5.—J. L., aged 34, a hawker, admitted into Lazarus Ward Oct. 14th, 1851, suffering with perinæal abscess. He has had stricture for at least six years, and has frequently had recourse to surgical aid for the relief of retention of urine. The symptoms of suppuration in the perinæum have been going on for about a week. Immediately on his admission I made a free incision into the abscess, discharging all its contents. Finding that, with very careful manipulation, I could get into the bladder a No. 1 catheter (through which a great deal of urine with muco-purulent matter was drawn off) I flattered myself that any further operation might be dispensed with. Next day, however, I found that he was suffering a great deal of local and general discomfort, and that considerable induration, with pain and tenderness, was extending itself from behind the scrotum to the root of the penis. This convinced me that the measures I had adopted were insufficient to prevent extravasation of urine; I accordingly opened the urethra (as in the foregoing cases) in front of the prostate, and set a large elastic catheter in the wound. This proceeding was followed by marked relief, and the tumour of the scrotum quickly declined. The perinæal catheter was discontinued on the 27th, and dilatation of the stricture begun with a No. 5. The man was of drunken and irregular habits, and required gin during his after-treatment, which otherwise presented nothing remarkable. He became impatient of hospital rules, and left us convalescent, on the 17th November.

Case 6.—J. G., aged 35, sturdy and well-conditioned, but habitually intemperate, was admitted into Abraham's Ward Oct. 17th, 1851, having perinæal abscess, with extensive extravasation of urine. He probably has had stricture for nearly nine years; his first complete retention of urine arose, after a debauch, three years ago, since when it has frequently recurred. The urethra appears to have given way four days ago. With great effort and pain he can dribble out a very little urine through the yard. Pulse 116, small and weak; tongue white and coated; general febrile disturbance; scrotum and perinæum prominent and tense; integument of belly œdematous almost to the navel. I proceeded to treat him in the same manner as the preceding cases,—punctured his urethra from the perinæum, and introduced a catheter through the wound; made a free incision at the scrotum and pubes, discharging an immense collection of pus and urine; and left his stricture unmeddled with for the next ten days. During this time his inflamed parts were poulticed with warm-water dressing, and his strength was sustained by appropriate diet. On the 27th, I withdrew the perinæal catheter, and made my first examination of his urethra. I found that, through a long succession of strictures, beginning just within the orifice, I could conduct a No. 5 into his bladder. From this time gradual dilatation was practised; and he left the hospital cured, Dec. 2nd.

The preceding six cases constitute my total of hospital-operations for retention of urine during the last two years. Most of you may have seen them all. The cases have differed from one another considerably in detail: but in all of them the simple proceeding which I recommend has been effectual. As I review them, I feel assured that for none of them could any other operation have been more successful than that which was performed; and I believe that, for most of them, no other could have been equally successful.

In the first case, the patient was moribund. I do not know that I have ever seen a man with chronic urinary disease recover from such apparent proximity to death. If I had set about dividing his strictures in the perinæum, and forcing a large catheter along the contracted channel of his penis, the loss of blood and the protracted pain would have been too

much for him. He would probably have died on the table. It is true that his urgent symptoms would have been relieved if I had tapped the bladder above the pubes, or by the rectum; and his case, in my judgment, is that one of the series in which it most nearly became a matter of indifference which of these operations should be performed. I have already told you the general principles on which I consider the perinæal puncture preferable to either of the other operations; and in this case, as generally, I saw no reason to choose the greater risk of the supra-pubic puncture, or to effect, by stabbing through the bowel, what could equally be done by traversing the skin. Most effectual relief was given him at a minimum expense of injury; and this, it need not be urged, is the desideratum in every surgical operation.

In all the other cases, urine was actually tending towards the perinæum. An opening of the urethra, though an insufficient one, had been established by an ulcerative process behind the seat of stricture. A perinæal incision was indispensable for the evacuation of pus and extravasated urine. Under these circumstances, to make a second wound through the rectum would have been the infliction of unnecessary mischief.

Indeed, in such cases, one hesitates whether it might not be expedient to advance a step further in the process of simplification; and, since nature has bored a hole in the urethra, whether we might not remain satisfied with a free division of the superficial parts, trusting to the sufficiency of the ulcerated hole (unassisted by a catheter) for maintaining the bladder without distension, and the stricture without irritation.

My one experiment in this direction was not satisfactory. In this instance (Case 5) as the urethra was pervious to a small catheter, and as no considerable diffusion of urine was in progress, I contented myself with a free perinæal incision, reaching to the urethra; and I trusted to the urine finding its way readily by this channel. But on the morrow it was clear that this measure had been insufficient; urine was apparently making its way, according to the general course of its extravasation, towards the pubes; and I therefore, with marked advantage to the patient, passed my bistoury a second time into the wound, opened the urethra there, introduced an

elastic catheter, and thus diverted the entire stream of urine away from the parts where it was hurtful. Rationally, too, one would expect this to be, for all such cases, the safer and better course. One cannot be sure of the exact spot where the pipe has given way; the ulcerated opening may be on one side or the other; it may even be in the upper wall of the urethra; so that its communication with the perinæal vent would be oblique or circuitous; it may be so restricted or valvulated by fascia, as to give the urine facilities for creeping preferably in other directions. It is, I think, an indication of supreme importance, to make the artificial channel of escape as direct and as free as possible.

The fourth case was peculiar in respect of the aperture already made into the rectum, through which urine was flowing; and when the circumstances were under consideration, a very obvious thought arose—whether that communication, already existing between the bladder and rectum, could be turned to account for the patient's cure. I determined in the negative. In its actual state it was evidently insufficient; for extravasation of urine was advancing to a frightful extent. It would have required surgical assistance (by trocar or otherwise) to make it available; and any such proceeding would have been made difficult and hazardous by the abscess between the two viscera, and by whatever change in their mutual relations that abscess had occasioned. If the rectal opening of the abscess were to remain plugged by a canula, who knew but we might have trouble from distension of the suppurating cavity, leading perhaps to some distant and less convenient discharge of its contents, or attended by increase of irritation in those inflamed tissues which the canula must traverse? Looking to the patient's almost typhoid condition, I dared not turn a hair's-breadth from the course which would give him, I knew, instantaneous and complete relief; so, while evacuating by an incision the fetid accumulation of pus and urine with which his perinæum was distended, I likewise punctured his urethra in the manner I have described to you, and conducted a catheter through the wound. Nothing could be more pleasing than his after-progress; he was immediately at ease. One could see how immense a weight had ceased to press down the

springs of his life; and in a very few hours he was removed from imminent peril of death to a state of comparative security.

Thus much for the cases; and, as regards the mechanical details of the operation, I need scarcely add to what I have already said, beyond recommending you to practise on the dead body, at every convenient opportunity, the art of reaching the urethra at its membranous portion without the guidance of a staff. On your power of doing this depends your right to attempt the operation I have described to you. But what can be easier? The canal which you wish to penetrate is not a small one; often, indeed, it is considerably dilated in consequence of the diseased condition which obliges you to operate; its position is invariable, and in every point of its course can be readily explored from the surface. The bulb is subcutaneous. The prostate you feel within the anus. The length of canal between these two points is not an inch; its course straight in the median plane. Any difficulty which might be occasioned by the bulging of the perinæum with pus or extravasated urine ceases, of course, with your first incision, which (in such cases made with proper freedom) gives immediate vent to the confined fluid, and enables you to proceed with facility. Often in thin subjects, and where the urethra has not given way, the distension of this canal, as the patient strains to make water, will render it so evident, that your operation may resolve itself into a mere puncture with a lancet. In the less easy cases, where your subject is fat, or the perinæum deep and infiltrated, there is really nothing to deserve the name of difficulty. You make a sufficient cut in the raphe, terminating a little in front of the anus, and sinking as deep as may be requisite into the cellular tissue. You may then, in the following way, arrive at the point of the urethra which you wish to penetrate. Pass your right forefinger into the anus; ascertain, through the wall of the bowel, the position of the prostate; bring your finger forward till it discovers the anterior extremity or apex of the gland; let it just pass this spot, and rest (nail upwards) pressing with its point immediately in front of the gland. Of course, if the parts were transparent, you would now see your finger indenting the membranous portion of the urethra at that hindermost point of its course where you purpose to puncture it. Now

pass your left forefinger (nail upwards) into the wound; advance it till (with the guidance of the finger in the rectum) it falls against the apex of the prostate; there you so arrange it, that the middle phalanx presses back the rectum; the last phalanx lies along the prostate, with the tip of its nail indicating the spot at which the urethra emerges. Finally, withdrawing your right fore-finger from the anus, and resuming the bistoury, you run this along the left fore-finger, till you penetrate the canal on which it rests, and immediately follow it by the short elastic catheter which you intend leaving in the bladder.

The cut is made into the urethra, you observe, just at the confines of its prostatic and membranous portions; a spot which is posterior to the seat of stricture, and is easy to hit, from the definiteness and invariability of its position.

With a little practice on the dead subject, you will readily acquire the knack of doing this operation in the natural condition of the parts with a single puncture; and you will find that disease alters those natural relations far less than is commonly stated. But in the most difficult cases which can come before you, if you follow the rule I have given you, and carefully determine through the rectum the exact point at which the urethra emerges, you will fail to find any embarrassment, and will complete the operation in much less time than I have taken to describe it.

The after-treatment of these cases, for some days succeeding the operation, is not unimportant. Liberal allowance of stimulants is often required, sometimes from the very first. This purpose I generally effect by wine, or (if the stomach be irritable) by brandy with soda water. Actual drugs I rarely use, unless it be to procure action from the bowels, which, if their secretions be much disordered, I do as early as possible, with either colocynth or compound rhubarb pill, in combination with blue pill. Opium I do not find admissible.

As regards the history of the operation which I have recommended to you, I cannot give you very full details. If you refer to Sir Astley Cooper's 'Lectures on Surgery,'* you will find that, at the time of their delivery, he recommended, in

* Vol. ii, pp. 315—317.

cases of simple stricture, that a puncture should be made into the urethra where distended by urine, immediately behind the seat of stricture; and Sir Benjamin Brodie (who rather leans to the rectal operation) speaks* of the puncture of the urethra as "a sufficiently simple and unobjectionable proceeding." As far as I can judge from Sir Astley Cooper's scanty description, it was only in cases of stricture far forward in the urethra that he adopted this course, and "passed a lancet" into some part of the canal anterior to the bulb. At least, if he ever practised any such operation as I advise for strictures situated further back in the urethra, so that his puncture would have been made in the vicinity of the prostate, I suspect that he soon afterwards abandoned it for the supposed advantages of dividing the stricture. The latter operation seems to have taken its rise about forty years ago. It was first practised, I believe, by the late Mr. Grainger of Birmingham —father of my distinguished colleague, our teacher of Physiology, and is very well described in a volume of 'Medical and Surgical Remarks,' published by that gentleman in 1815. It soon became the general operation for cases of stricture, and has been extensively practised, in the Borough hospitals and elsewhere, down to the present time. When Mr. Grainger found himself unable to accomplish it, he used to make a partial division of the prostate, as in the lateral operation of lithotomy, and thus convey an elastic catheter to the bladder. Sir Benjamin Brodie recommends, in cases where the urethra has given way behind a stricture, and where a bougie can be introduced, that this should be used as a director for the introduction of a perinæal catheter, and that the latter should be left in the wound for one or two days.

I am not aware of any surgeon having habitually practised the operation in the form I have described; and, from such observations as I have made on the subject, it seems to me well worthy of more general adoption. Practised in the manner I advise, it may, I think, entirely supersede the operations for tapping the bladder, except in those very rare cases of prostatic tumour, where the supra-pubic puncture is inevitable. It likewise entirely annuls the supposed necessity, while it avoids the difficulties and dangers, of dividing the

* 'Diseases of Urinary Organs,' p. 42.

stricture *in perinæo* for the relief of retention of urine. And its advantages, meanwhile, are purchased by so trifling an endurance of pain, inconvenience, or injury, that I could not cite to you, from the whole practice of surgery, any parallel instance of disproportion between means and results—any instance where, from an extremity of disease, suffering, and danger, the patient is suddenly removed, by surgical appliances so simple and so secure, to a condition of comparative enjoyment and safety.

The only argument likely to be urged against the proceeding in question is one which I may best anticipate and answer in Sir Astley Cooper's words. "This operation has been objected to (he says) on the supposition that it requires great anatomical knowledge. To this objection I will say, that he who is adverse to an operation because it requires anatomical knowledge, should immediately give up his profession; for if surgery be not founded upon an accurate knowledge of anatomy, it will be better for mankind that there should be no surgery, as disease will proceed better with the natural means of relief than with the aid of those surgeons who are not anatomists."

THE INITIAL ERUPTIONS OF SMALLPOX.

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During the smallpox epidemic, which has been prevalent in London for the last few years, I have had the opportunity, as resident assistant physician at St. Thomas's Hospital, of seeing a good many persons suffering from that disease, some of whom became in-patients at St. Thomas's, while others were sent to smallpox hospitals.

I was struck with the pretty frequent occurrence of rashes of various kinds before the characteristic eruption of variola made its appearance, rashes which were previously unknown to me in connection with that disease. The majority of medical men with whom I came in contact gave me but little information on the subject, though many were aware that certain erythematous and measly eruptions did occur early in some cases of variola. On looking at the English text-books I could find only the most meagre information on this subject. Even Mr. Marson, with his extensive experience, merely gives the subject a passing remark in his article in 'Reynolds' System of Medicine,' saying:—"In cases of smallpox after vaccination, which are so frequently met with in these days, the true or distinctive eruption of smallpox is very often preceded by roseola, which lasts two or three days—the roseola exanthematica—which may lead observers not intimately acquainted with the early symptoms of smallpox, to suppose the patient has an attack of scarlatina. But this eruption may be known from that of scarlatina by not being so completely diffused

over the skin as the rash of scarlatina usually is. It is also of a lighter, brighter roseolar scarlet tint than the eruption of scarlatina, which has a rather dingy hue, and, above all, it has a mottled appearance."

This exceedingly inadequate information from such an authority can only result from the well-known difference in the frequency with which these initial rashes are present in different epidemics. Writers in other countries have more to say on the subject. Thus, Trousseau, Hebra, Neumann, Curschmann, all give the matter some attention; but by far the best account is to be found in the 'Arch. für Dermatologie und Syphilis,' for the years 1870, 71, and 72, from the pen of Dr. Theodore Simon, of Hamburg.

These rashes are of great importance, not only from a diagnostic point of view, but also because they explain the origin of many opinions relating to the simultaneous appearance of two of the acute exanthemata in the same individual. Most of the instances of such an occurrence which have been recorded are cases where measles or scarlatina has been supposed to occur simultaneously with variola. But scarlatiniform and morbilliform, as well as other rashes, unaccompanied, however, by those phenomena which taken together constitute the diseases scarlatina or measles, are part of the clinical history of a considerable number of cases of simple smallpox. I find I have records of twelve such cases only, records which are by no means always so complete as might be desired, and my excuse for publishing so small a number must be, that they contain instances of most of the initial rashes which are known to occur in smallpox, and that there is so little to be found at present in English literature on this subject. The following may be taken as a provisional classification of the initial rashes of smallpox.

- I. Erythematous
  - (*a*) General erythema
    - (1) Scarlatiniform.
    - (2) Morbilliform.
  - (*b*) Partial erythema
    - (1) Of extensor surfaces.
    - (2) Of flexures.
- II. Hæmorrhagic
  - (*a*) Petechial.
  - (*b*) Consisting of larger hæmorrhagic areæ

A large number of patients who present these eruptions have them before the appearance of the characteristic smallpox exanthem, and usually on the second day of the disease, sometimes not till later; and occasionally these rashes are said to precede the rigor and fever which are ordinarily taken to represent the onset of the malady. They sometimes disappear with great rapidity, remaining visible only twenty-four or forty-eight hours, sometimes they persist for a good many days.

I. Erythematous Rashes.

(*a*) *General Erythema.*

(1.) *Scarlatiniform.*—When a general initial erythema occurs in smallpox it usually makes its appearance about the second day of disease. It may be either bright red or have a dusky purplish tinge. Under the latter guise it frequently ushers in hæmorrhagic smallpox. It generally comes out very suddenly, and occupies the whole body within a short period of time. It may disappear rapidly or gradually, and when gradually, it often declines in patches, leaving for a while a blotchy erythema behind. Coming on on the second day of an acute disease it may possibly be mistaken for the rash of scarlet fever, and in the absence of the violent pain in the back, which is often so characteristic a phenomenon of smallpox, it would be difficult, if not impossible to make a positive diagnosis. The points which I, with a limited experience, would be inclined to lay stress upon in forming an opinion would be—

1. That the early erythema of smallpox becomes much more rapidly general than does the eruption of scarlet fever, which is usually visible for some time in the upper part of the body before it makes its appearance in the lower.

2. That the erythema of variola is more even and uniform than that of scarlet fever, and does not show the papillæ of the skin standing out so red and prominent as is generally the case in the latter disease.

The following three cases are instances of a general initial erythema occurring in smallpox.

Case 1.—*General erythema on second day of disease, and punctiform petechiæ in the groins on third day.—Recovery.*

E. E—, æt. 15, was admitted into the hospital under Dr. Murchison on October 19th, 1876. She had been in Dulwich as a domestic servant for six weeks. She said she had been ailing for about ten days, and that one of her fellow-servants had recently fallen ill, and had had a rash like hers, and been sent to her home.

On October 18th, E. E— had rigors and general pains, which were much more severe in the back and head than elsewhere. Retched frequently, but had no vomiting. She had been vaccinated once in infancy, but not since.

When I saw her on the 19th the whole body was covered with a bright scarlet erythema which was most intense upon the face. Numerous papules, just elevated above the surface but not yet very hard, were present on the chest and fewer on the face. On the chin was one characteristically umbilicated vesicle. The tongue was brown and dry in the centre.

On the 20th, which was the third day of the disease, the temperature was 102·4° F., and the patient looked very red. There was a pretty generally distributed blotchy erythema, disappearing on pressure, and just in the groins and lower part of the abdomen were numerous small petechial spots which did not completely disappear on pressure. Indeed, the whole eruption presented a most varied appearance. Erythema, papules, vesicles, petechiæ, all were present at the same time. The patient had been a little delirious in the night, had not passed any urine, and the bowels had not been open for several days.

On the 21st, the fourth day of the disease, the throat was sore, and there was an eruption of vesicles on the palate. The eruption was concentrated principally on the face and chest, and there was much less of it below. The erythema had left the legs, and the petechial spots in the lower part of the abdomen had changed to a brown hue. Most of the eruption was in the vesicular stage, and on the face a good deal of erythema still remained. The temperature, which had fallen pretty quickly and regularly since the second day of her illness, was now 98·6° F.

On the 22nd, slight secondary fever came on as the vesicles became pustular, and lasted for three days, but the temperature was never above 100·5° F.

After the 24th the temperature remained normal, and scabbing occurred. Some of the papules on the face aborted in the early stage, and never developed even into vesicles.

Case 2.—*General scarlatiniform erythema on second day.—Sudden disappearance by fourth day.—Hæmorrhagic smallpox.—Death on eighth day.*

A. W—, æt. 22, was admitted under Dr. Bristowe on October 27th, 1876. He had been ailing a little for seven days. On the day before admission he was seized with violent pain in the back and abdomen and vomited. Bowels were open naturally.

On admission he seemed in intense pain; the tongue was thickly coated and white. No eruption on the skin. Temperature was 102°. Patient had been vaccinated in infancy, but not revaccinated. He had one good vaccination mark on the left arm.

28th (third day of the disease).—In the course of the afternoon of the 27th, after the patient had had a bath and been put to bed, the whole body became covered with a pretty uniform erythematous rash, a little dingy in colour and with the papillæ of the skin somewhat elevated. It was very like the eruption of scarlet fever. The patient had had the latter disease six or seven years previously. Temperature 104° F.

29th (fourth day of disease).—Very little of the erythema visible, but on the face, inside of forearms, and upper surface of foot, and elsewhere in smaller numbers, very small papules were making their appearance; but they did not yet feel shotty. Pain in back was bad, and there was much bronchitis. Temperature 104° F.

30th (fifth day of disease).—Papular eruption was coming out rather slowly everywhere, and appeared as if it would be confluent. Tongue coated thickly white; bowels open; some sickness, and pain in back and head. Urine contained no albumen. Temperature 103·6°.

31st (sixth day).—Eruption very copious on back and face.

In the latter situation there was an uniform swelling, which was broken up into numberless secondary elevations. Between the thickly-strewn papules on the back was an erythema of dusky hue. The eruption on the feet, but not elsewhere, was already vesicular. There were no papules in the mouth, but many on the arms. On the shins were many dark-red blotches which did not disappear on pressure. Spleen was greatly enlarged, and could be felt below the ribs. Temp. 104·6° F. Much frothy expectoration.

November 1st (seventh day of illness).—Eruption still mostly papular; here and there a vesicle could be seen; slight delirium in night; no pain. Temp. 100° F. in the morning and 102·6° F. in the evening.

2nd (eighth day).—Eruption vesicular, but not universally so; confluent on hands, lower arms, and on face. Small petechiæ on abdomen, and a large subcutaneous, bluish area on the left hand. On the legs numberless purpuric spots between and under the vesicles, but no hæmorrhage into the latter. Tongue thickly coated, white, and moist. Pulse 150, weak; very delirious and violent; temp. 102° F.

The patient died in the course of the day.

Case 3.—*General erythema on third day, together with punctiform petechiæ in the groin.—Hæmorrhagic smallpox.—Death on fifth day.*

J. W—, æt. 19, was admitted under Dr. Murchison on June 8th, 1877. Patient said he had been vaccinated in infancy. There were three vaccination marks on the left arm, two of which were good. He had never been revaccinated. The patient was applying for outdoor relief at 1 p.m., and I found him lying on the floor. He looked very ill, but his temperature was only 99° F., and no sign of disease could be detected in any organ, nor was there any cutaneous eruption. He had been seized suddenly three days previously with shivering, vomiting, headache, and pain in the back.

Later in the afternoon I was summoned to the ward in which he lay as he was suffering from intense pain in the back and abdomen. He appeared very flushed, and the whole surface of the body was occupied by a bright red erythema,

which was most intense on the arms and upper part of body. On looking at the groins I found a slight sprinkling of punctiform bluish petechiæ. There was also one papule situated on the anterior fold of the left axilla. His temperature was only 100° F.

9th.—The temperature in the morning was 100·4° F., but rose at night to 103° F. The patient was very flushed, and the erythema was still general, but most intense in the upper part of body. The petechial eruption in the lower abdomen had become much more profuse. The papule, which was still the sole representative of the ordinary smallpox eruption, had become vesicular and slightly depressed in the centre. The conjunctivæ were greatly injected. The pulse was 120; the urine pale, clear, and not albuminous. The patient was groaning constantly with the intense pain in the back. The tongue was dry and furred; there was great thirst, and a troublesome hacking cough without expectoration. No delirium. Bowels not open for four days. The patient vomited twice during the day.

10th (fifth day of disease).—No rest all night; slight delirium. Still great pain, but no more vomiting. Face very dusky. Abdomen very dark. Patient took a good deal of nourishment, but was very prostrate. The temperature was 100·5°; resp. 36; pulse 156, very feeble. The tongue was brown and dry. The patient had slight bleeding from the nose and blood-stained expectoration, and died at midday, the temperature being then 102·5° F.

There was at the time of death still only the one smallpox vesicle, but it was quite characteristic of the disease.

(2.) *Morbilliform eruption.*—Case 4 is an instance of an initial eruption very closely resembling measles. Other writers agree with me in stating that this is not a common early exanthem in smallpox. The course of events in this instance does not bear out a remark which has been made, that the measly rash is only the commencement of the true smallpox eruption; for the whole of the former suddenly disappeared as the latter began to develop.

Case 4.—*General morbilliform eruption suddenly disappearing on the development of the characteristic smallpox eruption.*

L. G—, æt. 36, was admitted under Dr. Bristowe's care on January 29th, 1880. She was very indefinite in her information regarding the onset of the disease, but said that three weeks before admission she "caught a cold," and that she had had dropsy ever since. Her temperature on the 29th varied between 104·8° F. and 103°, and she stated that her face was first noticed to be red on the same day.

When I saw her on the 30th the temperature had dropped to 101·8°; the eyes were very much injected and watering. There was a profuse eruption over the face, trunk, legs, arms, feet, and hands, exactly like measles, and it gave the face the same blotchy, dusky appearance which is seen in that disease. But on the chin the papules were larger and harder than in measles; they were becoming confluent, and seemed as if about to vesiculate. Here and there on the trunk, too, were suspicious vesicles, and one was seen on the back of the right wrist. The disease was evidently either measles or smallpox, but the eruption was not sufficiently advanced to make the diagnosis certain, nor did the previous history give much assistance. The patient had been vaccinated in infancy, and never had had smallpox, and there were two fairly good vaccination marks, one on each arm. The urine was albuminous, and contained blood.

On the 31st the disease was evidently variola, and the characteristic eruption was well out on the face, especially in its lower half. Here and there vesicles were seen on the abdomen, but there were none on the legs, and no fresh ones on

the arms. Temperature was about 100° F. The measly rash had entirely disappeared.

On February 1st the vesicles were becoming pustular, and a few round the mouth were confluent.

On the 4th the eruption was drying up, and the temperature varied between 98·4° and 99·4° F.

On the 6th many of the scabs were falling off, and the patient was convalescent.

(*b*) *Partial erythematous Eruptions.*

(1.) *Erythema of extensor surfaces.*—Dr. Simon's experience leads him to consider an erythematous rash, confined to the extensor surfaces of the limbs, as one of the most typical initial eruptions of smallpox. He quotes many cases where, at the onset of the disease, or shortly after, an erythema occupied the patella, olecranon, and other parts of the extensor surfaces of the limbs. He calls special attention, too, to the appearance of the great toe in these cases, where the erythema occupies the space between its inner border and the tendon of the extensor longus hallucis. I am only able to record one case where the extensor surfaces were the sole parts occupied by the erythema, and I have no recollection of any other similar cases.

Case 5.—*Modified Smallpox with erythema of extensor surfaces of upper and lower extremities.*

M. P—, æt. 15, applied for relief as a casualty patient. He gave a history of a few days' illness, but his account was not sufficiently definite for one to fix the exact day of the disease. He had on the face and body a scanty eruption of vesicles with a hard base, which were becoming pustular, and the case was evidently one of modified smallpox.

In addition to the pustular eruption he had a blotchy erythema, which covered the whole of the anterior surface of the upper legs, from the groins to the knees, as well as the extensor surfaces of both forearms. The flexures and other parts were quite free. The patient was not admitted into the hospital.

(2.) *Roseolar eruption on the flexures.*—Hæmorrhagic erup-

tions in the flexures at the commencement of an attack of smallpox are not at all uncommon, but bright red erythematous eruptions confined to these parts are rare. In Case 6, which is related below, the disease commenced while the patient was in the hospital, so that ample opportunities were afforded for careful observation. I have never seen or read of a case where a roseolar initial exanthem occupied the positions shown in Fig. 1. It is very interesting, however, to compare this figure with Figs. 3 and 4, which shows the early hæmorrhagic eruption occupying very similar positions, this peculiar distribution being, I believe, characteristic of smallpox.

Case 6.—*Modified smallpox, with erythematous eruption in flexures on first day, which gradually disappeared, and was followed by erythema of extensor surfaces.—Erythema gone by eighth day.*

W. G—, æt. 18, was admitted into Charity Ward under Dr. Ord on November 19th, 1877, suffering from a severe attack of chorea. The disease was very obstinate, and but little benefited by treatment.

For a few days previous to February 26th, 1878, the patient had been ailing in an indefinite way, and on that day he had some shivering, and an erythematous eruption appeared about the groins. On the 27th he was sick once, and had a pain in his back, not very severe, which lasted for several days. His evening temperature was 102·6° F. On the 28th it was 103·8° F.

On March 1st, the fourth day of the disease, my attention was called to the case by the house physician. I then found the patient with a temperature of 103°, and with a profuse eruption on his body, partly erythematous and partly papular. The erythema was very peculiar in character. It was bright red, and had picked out the flexures for its strongholds, as shown in Fig. 1, a rough diagram which I made at the time. It occupied the anterior surface of the neck like a collar, both axillæ, the flexor surface of the elbow-joints, the palms of both hands and the flexures of the fingers, the popliteal spaces, and the inner aspect of the right foot. Where it was observed to extend over the largest continuous area, however, was on the

lower half of the abdomen. Here it ran upwards as high as the umbilicus and downwards on to the internal aspect of the thighs for a few inches below Poupart's ligament. An oblique, very clearly defined line marked its lower limit on each side, but the sharpness of its upper boundary was broken by a number of erythematous dots and blotches. It extended

FIG. 1.



The shaded and dotted parts show the site of the initial erythema.

also into the flanks and between the nates posteriorly. The upper half of the abdomen was left almost free from the eruption, which appeared again as two dotted lines, extending from the lower costal margin in the axillary line on each side, and running obliquely upwards to meet the sternum on a

level with the third or fourth costal cartilages. Below, these lines became continuous with the eruption in the flanks.

The erythema in the flexures of the limbs was bounded by pretty well-defined lines, broken, however, to a certain extent, by red puncta and blotches. The extensor surfaces were quite free. The eruption was slightly raised above the level of the skin, and on passing the finger over it one felt the surface somewhat irregular. In addition to this there was a papular eruption. The papules were observed in small numbers on the forearms, showing a preference for the flexor surface; there were also one or two on the back of the wrists and on the face; very few on the legs and on the anterior surface of the trunk, but a good many on the back. None on the palate. The papules were hard and shotty to the touch, and here and there one was just beginning to vesiculate at its apex.

The onset of the illness with shivering, pain in the back, and vomiting, the height of the fever, and the hard papular eruption appearing on the third or fourth day of the disease, left no doubt that the case was one of smallpox, and the patient was transferred to the smallpox ward. He was found to have three large and pretty good vaccination marks on his left arm, but he had never been re-vaccinated.

2nd (fifth day of disease). — The eruption of variola was now well marked on the face, arms, back of the wrists and legs, and was making its appearance on the dorsum of the feet. Many of the papules were already vesicular and surrounded by a blotchy, red halo, not elevated above the surrounding skin. Those parts, however, which were occupied by the initial erythematous eruption, were almost entirely free from the papular. Temperature range was 101° F. to 103·6° F.

3rd (sixth day of disease).—The initial erythema had nearly disappeared, but there were many smallpox vesicles distributed over the body. Those on the face were, by this time, pretty numerous, but in a less advanced stage than those elsewhere; they were just commencing to vesiculate, while the eruption on the legs and arms consisted of fully-developed vesicles. The whole rash looked exceedingly blotchy, and while the palms of the hands were still covered evenly by

the bright red erythema, their dorsal aspects were covered with blotches of a similar erythema, in the midst of which were seen the smallpox vesicles. The arms presented a very similar appearance; they were occupied by a considerable number of vesicles, which were small, perfectly round, contained a clear greyish fluid, and were surrounded by broad, irregular, red blotches, which ran into each other. The vesicles had no hard base, but rose abruptly from the erythematous patches. The eruption, in short, was that of smallpox, modified greatly by vaccination. The patient complained of sore throat, and there were a few vesicles on the palate. The temperature ranged from 100·2° F. to 103·2° F.

4th (seventh day of disease).—The red erythema had all but gone from the flexures, being just faintly seen about the neck, and there was scarcely a vesicle to be seen on the site which it had previously occupied. It had, however, invaded the extensor surfaces. On March 3rd it was observed mainly on the backs of the hands and forearms; on the 4th it had nearly disappeared from these positions and occupied the upper arms, giving them a blotchy appearance. It was also seen occupying the extensor surface of the leg from the thigh to the knee with an almost continuous erythema. Some of the vesicles showed a slight central depression, apparently due to commencing scabbing. Temperature was gradually getting lower, the range being from 100·2° F. to 101·6° F.

5th (eighth day).—Contents of vesicles somewhat turbid; some drying in the centre. Scalp covered with smallpox eruption; erythema completely gone. Temperature range from 99·2° F. to 101·4° F.

8th (eleventh day).—Eruption now generally drying up. Range of temperature 98° F. to 100·6° F.

11th (fourteenth day).—The eruption now consisted of nothing but dry scabs, scarcely one of which was to be found in the positions occupied by the early erythema as shown in the diagram. Temperature normal. From this time on the patient remained perfectly well.

II. Hæmorrhagic Eruptions.

(*a*) *Petechial.*

Independently of the general eruption of petechiæ in cases of hæmorrhagic smallpox, there is often found in mild cases of the disease a punctiform petechial rash, localised in a somewhat characteristic manner along Poupart's ligament and the region immediately adjacent to it. Frequently this undergoes no further development, but sometimes it is only the early stage of the initial exanthem described in Cases 10 and 11. Cases 7 and 1 are instances of the localised petechial rash. Case 8 was so also when I saw her, but it may have afterwards developed into larger hæmorrhagic area.

Case 7.—*Mild attack of variola with punctiform petechial eruption in groins on third day.*

K. Y—, æt. 20, admitted under Dr. Murchison on December 4th, 1876, was taken ill suddenly on the second with rigors, pain in the back, and vomiting, which lasted up to the time of admission. On the evening of the second she was observed to be red in the face, and a friend said that she had scarlatina. She had been vaccinated in infancy but not since.

On the day of admission, which was the third of disease, her face was red and studded thickly with papules, some of which were slightly vesicular. The papules were also thick on the hands and arms up to the elbow, but no higher. There were a few on the trunk and legs. In the lower part of the abdomen on each side, along Poupart's ligament, the skin was mottled with small, dark, hæmorrhagic spots, which did not disappear on pressure. The temperature was 101·4° F., the tongue was coated, moist, and white. The temperature dropped rapidly to the normal, but rose again on the sixth day, and remained between 100° F. and 101·8° F. for three days, then fell and remained natural. The case was a mild one, and the patient recovered, the scabs forming rather earlier than in the unmodified disease.

CASE 8.—*Punctiform petechial rash on lower part of abdomen and flanks.*

E. B—, æt. 28, presented herself at the hospital on March 14th, 1878, applying for admission. She was three months pregnant, and appeared very unwell. She had been taken ill suddenly five days previously, but gave a very poor account of the onset of the disease and of the first appearance of the rash. She had, at the time I saw her, a temperature of 104° F., and was suffering from great pain in the back and epigastrium. The true smallpox eruption was very scanty, but quite sufficient to establish the diagnosis. The face was free from it. There were a few spots already vesicular on the sides of the abdomen, and one here and there on the arms. There was, however, in

FIG. 2.



The dots indicate the site of the initial eruption of petechiæ.

addition to this, a punctiform, petechial, non-elevated eruption in the groins, flanks, and above the pubes, as shown in Fig. 2. The rest of the body was quite free from it. The lower border of this rash was sharply defined, and occupied but a very small extent of the thighs. The patient was sent to the Smallpox Hospital.

(*b*) *Initial Eruption occupying large hæmorrhagic areæ.*

This is certainly the most striking as well as, so far as my experience goes, the most characteristic of all the initial rashes of smallpox. The parts occupied by the roseolar rash shown in diagram 1, are those affected by the hæmorrhagic form, but I have never seen the latter so widely distributed as the roseolar was in that instance. The eruption usually occupies the whole of the lower part of the abdomen from the umbilicus downwards in the form of one continuous hæmorrhagic area, the surface of which feels very slightly granular. This dark surface is continuous on each side below, with a triangle of similar character, which Simon calls the "crural triangle." When the legs are close together the apices of these triangles meet in the middle line. The lower boundary of the triangle is, as a rule, a very sharply-defined oblique line as seen in Fig. 4. This, however, is not invariably the case, for the hæmorrhagic surface may end, as shown in Fig. 3, in a shower of punctiform petechiæ. The flanks and lower part of chest are usually occupied by petechiæ, while the region of the umbilicus is left comparatively free.

The upper boundary of the hæmorrhagic surface usually passes through, or a little above, or a little below, the umbilicus, in the form of an irregular, pretty well-defined line, which is broken more or less by small petechiæ. The other flexures, and especially the axillæ, may likewise be occupied by a hæmorrhagic patch with well-defined outline, called by Simon the "brachial triangle."

A very peculiar circumstance, which has been remarked by several writers, is the fact that the true smallpox eruption generally avoids the positions which have been occupied by the initial rashes. This remark applies only to those eruptions which extend over large continuous areas, and even in these cases the rule is not universal. Very often one sees the lower part of the abdomen and crural triangles occupied solely by the initial exanthem. Sometimes a few smallpox vesicles develop there as well, and very rarely the brunt of the smallpox eruption falls upon these parts. Simon quotes an instance where this occurred.

Case 11, which is recorded below, is an instance of another occasional and very curious phenomenon. The crural triangle, which was the seat of a continuous hæmorrhagic exanthem, had no smallpox papules or vesicles upon it, but a band of skin immediately below and parallel to its well-defined lower margin was occupied by a confluent vesicular eruption.

Case 9.—*Case of smallpox with early eruption of petechiæ and continuous hæmorrhagic area occupying the lower part of abdomen and crural triangle.—Recovery.*

N. R—, æt. 44, was admitted under Dr. Stone on March 16th, 1877. The patient said she had been vaccinated in twelve places when a child, ten of which "took," but that she had never been re-vaccinated.

On examination, one good mark was found on the left arm in addition to one or two others which were very indifferent. She had been taken suddenly ill four days before admission with headache, shivering, vomiting, and pain in the back; and an eruption first made its appearance on the second evening of her illness. When she presented herself at the hospital her face was covered with papules slightly raised above the surface; there were also a few on her arms. Punctiform petechiæ were scattered thickly over the back, abdomen, and chest. The distribution of these on the abdomen, chest, and upper part of thighs corresponded closely with that shown in Fig. 4.

Dotted somewhat sparsely over the chest and upper part of abdomen, and very thickly in the flanks, lower abdomen, and upper part of thighs, they left a large circular area round the umbilicus all but free. On the thighs they ended in a very sharply-defined oblique line which, when the legs were close together, formed with its fellow of the opposite side a triangle, the base of which was the lower border of the abdomen, and the apex the junction of the two oblique lines below. There were likewise a few petechiæ on the lower part of the tibiæ. The temperature was 104° F., the tongue dry and red, and not much coated. The liver and spleen were both somewhat enlarged, the lungs appeared to be healthy, and there was a systolic murmur at the apex of the heart.

The temperature went down gradually, and was 99° F. on March the 20th, which was the eighth day of the disease. The eruption gradually developed, and on March 19th the vesicles were confluent on the face, and thickly scattered over both arms, but only dotted here and there over the rest of the body. Some of the vesicles were black in the centre. Extensive ecchymoses occurred in the conjunctivæ, and the right was entirely occupied by one large extravasation. There was also œdema of both eyelids. The petechial eruption was fading a good deal on the lower part of the abdomen, and a slight catamenial discharge appeared. The patient did not sleep though she was given Liq. Morphiæ Hydrochlor. ʒss.

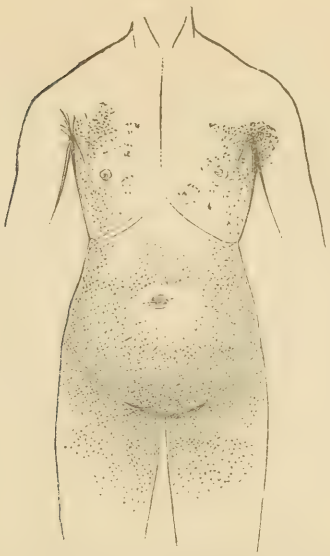
March 20th.—Violently delirius and very talkative, crying "police," and abusing those about her. The petechial eruption was still on the wane, and she commenced to refuse food.

On the 21st the temperature began to rise again as the eruption became pustular, and reached its highest point, 103° F., on the 23rd, and gradually descended to 99° F. by the 25th. The petechial eruption and the conjunctival ecchymoses gradually disappeared, and the patient recovered.

Case 10.—*Petechial and hæmorrhagic eruption on second day. —Most intense on lower part of abdomen and in the crural triangles.*

A. J—, æt. 28, applied for relief in July, 1878, on the fourth day of his illness. He had three bad vaccination marks. The onset of the disease had occurred quite suddenly four days previously with severe pain in the back, rigors, nausea, and anorexia. On the second day a dark rash was said to have made its appearance in the groins and lower part of the abdomen before any papular eruption had appeared on the face. The latter was said to have made its first appearance on the third day. When I saw him on the fourth day the tongue was thickly coated, brown and dry. There was a closely-set eruption of smallpox papules on the face, and a scattered one on the arms, legs, and trunk. The temperature was 105° F. Besides these papules there was a well-marked petechial rash, barely elevated above the surface of the skin

Fig. 3.



The site of the initial petechiæ and hæmorrhagic areæ are indicated by the dots and shading.

and occupying the positions indicated in Fig. 3. Elsewhere it was absent. The patient was sent to the Smallpox Hospital.

Case 11.—*Petechial and hæmorrhagic eruption on second day, most marked in lower part of abdomen and crural triangles. —Death on eighth day.*

C. S—, æt. 21, was admitted into Lydia Small Ward, under Dr. Bristowe's care, on March 20th, 1879. The patient had first felt ill at 6 a.m. on the 17th, and he first noticed a dark rash on the body on the 18th. He had one bad vaccination mark on the right shoulder, and another questionable one lower down.

On admission he felt and looked very ill and weak. He complained of constant and intense pain across the loins and of sore throat. The temperature was 105·6° F. The voice was husky, but fairly strong. The fauces generally were red

and swollen, but there was no eruption visible on them. The breath was offensive; the tongue thickly coated, brownish, and becoming dry. Bowels had not been open for two days. Vomiting, which he had suffered from before admission, had ceased. There was great thirst. The mind was calm and clear. A very general petechial eruption was present on the body, and the patient's aspect was very dusky. This eruption occupied both groins and the inner and outer aspect of the upper part of the thighs. Its lower border on the front of the upper leg was very sharply defined by an oblique line. The petechiæ were thickly set on the lateral parts of the trunk and on the front of the chest, while they left the front of the abdomen much less affected. The greater part of the rash was not raised above the general surface, but in the groins it felt slightly elevated and granular. This eruption was for the most part discrete, but became confluent in the

FIG. 4.



groins and upper part of the thighs. The petechiæ were pretty freely distributed over the back. The face and hands were free, and the arms and legs showed much fewer of them than other parts. The axillæ and the other flexures were not

specially affected. The conjunctivæ were slightly injected, and the patient's hands and forearms were of a deep scarlet colour. The usual eruption of variola was seen on the dorsal surface of the wrists only as small shotty papules, but the face was free from them.

21st (fifth day of illness).—Patient much in the same condition, but the temperature rose at 10 a.m. to 107·8° F. No delirium. Still severe lumbar pain. Tongue dry and coated; thirst less; bowels not open. In addition to the eruption present on the 20th, there were now papules coming on the face.

The patient died on the eighth day of the disease. The temperature remained up to 104° or 105° F. until the day preceding death, when it dropped rather suddenly to 98° F., and rose again to 104·5° two hours before the patient expired.

During the latter part of his illness the petechial eruption faded greatly, especially on the lower part of the abdomen, and the true smallpox eruption developed more and more on the face, neck, arms, and upper part of the thighs. It seemed studiously to avoid the parts which had been the seat of the petechial rash, and immediately below the sharply defined line, on the anterior and internal aspect of the thighs, was an area, of about one to two inches in width, where the smallpox vesicles became confluent, though they were everywhere else discrete. None were to be found on the anterior surface of chest, abdomen, or groins.

The eruption never reached the pustular stage, and there was no hæmorrhage into the vesicles. The mind was clear to the last.

Case 12.—*Early eruption of petechiæ and hæmorrhagic areæ in lower part of abdomen and crural triangles and other flexures; also morbilliform eruption on neck and dusky erythema on extensor surfaces of arms.—Death.*

M. G—, æt. 19, was admitted under Dr. Bristowe on March 1st, 1877. She had had scarlet fever when a child, and she had three good marks, the result of vaccination which had been performed in her infancy, but not since.

The patient was quite well until the night of Sunday,

February 25th, when she felt rather unwell after having had some "winkles" for tea. On Monday she had some headache, and took a black draught, which was followed by vomiting and diarrhœa. On the 27th she had sore throat and headache, and vomited after everything she took.

On March 1st, the day of her admission into the hospital, she found on waking up in the morning that, although she had had no rash on her skin when she went to bed the night before, she then had an eruption on her breasts, and the inside of her thighs was quite purple. On seeing her at 5 p.m. I found her looking strong and energetic, and denying that she felt particularly ill. The tongue was moist, and but little coated; the conjunctivæ were little, if at all, injected; the fauces were slightly red. All that she complained of was the rash. This consisted of a diffused, somewhat lumpy erythema of face, with a tendency to the formation of papules here and there; on the side of the neck it became quite patchy like measles, but was not elevated. The arms were occupied by thickly set patches of erythema, which were not elevated, and had rather a streaky appearance, and here and there one saw a very small papule. On the back of the wrists were a number of small red dots not elevated above the surface. On the chest the eruption appeared to the eye to be papular, but no elevations above the surface could be felt by the finger. The breasts and parts around were covered with small punctiform petechiæ. From the umbilicus downwards, round the loins, and over the gluteal regions, was a very intensely purple, continuous rash, which did not disappear on pressure, and became of a darker and darker hue towards the pubes, and darker still in the groins, and which finally formed, quite symmetrically, on the inside of each thigh, one continuous hæmorrhagic, but non-elevated, area. This ended below in showers of punctiform petechiæ. On the legs below, the papillæ of the skin stood out as dark red points, but there was no profuse eruption there. The flexures of the arm-pits, elbows, and knees were occupied by petechial, non-elevated patches, and on the outer surface of the elbows, arms, and forearms, there was a continuous, rather deep-coloured erythema. The temperature was 103° F. At this time the general symptoms were so slight, and the patient appeared so

well, that it was difficult to believe that one was looking at the malignant, hæmorrhagic form of smallpox. She had not had hæmorrhage from any of the mucous membranes.

On reaching the ward she was considerably fatigued, and on going to bed had pain in the head and restlessness. The pulse was 120, and the temperature at 10 p.m. 104·2° F.

2nd.—The temperature remained up during the day to 104°, or a little above that. The eruption assumed the more evident characters of smallpox. The face was beset with ill-defined elevations, as were the arms, and here and there one saw a well-defined papule. A few papules appeared on the dorsum of the feet too, and some vesicles were seen on the palate. The diffuse erythema retained its fiery purple appearance unchanged, and the site of its maximum intensity on the lower half of the abdomen and inner aspect of the thighs remained free from the papular eruption, though it felt coarsely granular to the touch. The catamenia appeared.

3rd.—The temperature fell during the day to 99° F. The patient had a very good night after forty minims of Liq. Morphiæ Hydrochloratis. The bowels were open after Ol. Ricini. The tongue was thickly coated, yellowish white. There was constant retching. The smallpox eruption progressed very slowly, coming out best upon the arms; there was hardly any on the legs, but they were studded with small petechiæ. Most of the flexures were pretty uniformly purple. One small ecchymosis appeared in the left conjunctiva. The catamenia were very profuse, though they never had been so before. The pulse was 120, regular, and not very weak in the morning, but became weaker towards night. She seemed throughout the day to have a good deal of energy, and talked, and even joked from time to time.

4th.—The catamenia still continued to be very excessive. The tongue was thickly coated, but moist. The temperature in the morning was 98·4° F. She had had a good night after a draught containing forty minims of Liq. Morphiæ Hydrochloratis. The vomiting and retching, which had been very troublesome, yielded to a draught containing—

Sodæ Bicarbonatis, gr. xx;
Ac. Hydrocyan. dil., ℥v;
Liq. Morph. Hydr., ℥xv. T. d. s.

The lower part of the abdomen was now of a dull greyish, rather than bright purple, colour, and there were a very few vesicles upon it. The vesicles on the face and arms were quite confluent, and a few of those on the face had a hæmorrhagic point in their centre. Around the neck, too, was a fairly thick crop of vesicles.

The girl continued to lose a very large quantity of blood per vaginum, got weaker and weaker, and died at 2 a.m. on the 5th, retaining her intelligence perfect to the last. The temperature rose gradually through the day, and reached 104·2° F. at the time of death.

Such being some at least of the initial rashes of smallpox, what is their value for diagnosis and prognosis?

A general erythema is, of course, in no way characteristic of variola, or of anything else. It occurs in scarlet fever, occasionally in enteric and typhus fevers, and also as a simple erythema due to various causes, such as gastric and other derangements. But if the usual early symptoms of smallpox, viz. rigors, vomiting, and great pain in the back, occur in a case of sudden disease, then the appearance of a general erythema on the first or second day, would enable us to make a very probable diagnosis of smallpox considerably before the appearance of the characteristic eruption. And even if we did not do so, the knowledge that an eruption of the kind in question occurring on the first or second day of an acute febrile disease was no sure proof of scarlatina, might save us from forming, and possibly expressing, an erroneous opinion. Very similar remarks apply to the diagnosis between measles and the morbilliform eruption of smallpox. The latter is not characteristic of variola. But if the early phenomena of variola are present, together with a measly eruption, we should at least do well to withhold for a while a positive diagnosis.

I have had very little experience of the erythematous patches on the extensor surfaces of the limbs, *e. g.* on the olecranon, patella, dorsum of the great toe, &c., which Dr. Simon lays so much stress upon. The large number of such cases which he records proves that they have much diagnostic value in some epidemics, and we should do well to bear them in mind.

With other symptoms suggestive of an attack of smallpox, but where there is as yet no characteristic eruption, I believe that the presence of punctiform petechiæ along Poupart's ligament brings a very strong probability in favour of the presence of that disease. A similar rash is seen occasionally in scarlet fever.

The larger hæmorrhagic area occupying the lower part of the abdomen and the crural triangles, as shown in Figs. 3 and 4, are, as far as I can make out from my own experience, and from the observations of others, characteristic of smallpox.

The roseolar eruption occupying the same positions as seen in Fig. 1, is also probably equally diagnostic of this disease; but as this is the only case I have seen I cannot make any positive assertion in the matter.

For prognosis the value of these rashes is less than for diagnosis.

The presence of the large hæmorrhagic areæ is always an unfavorable, though not a necessarily fatal, occurrence, as is shown by the recovery of Case 9.

Punctiform petechiæ in the groins are of very frequent occurrence without the cases proving at all severe; and I should be inclined to say the same of all the erythemata, with this one exception, that the more dusky or purple the tint of an initial general erythema, the more unfavorable is the case likely to prove. Such dark rashes frequently usher in hæmorrhagic smallpox.

As a member of the staff of a general hospital, my experience of variola and of its initial eruptions is necessarily very limited; and it would be no small addition to medical knowledge if gentlemen attached to smallpox hospitals would publish their observations on this really important subject.

In conclusion, I must express my obligation to the physicians of St. Thomas's, who have kindly permitted me to quote cases which were under their charge.

ABSTRACTS

OF

NOTES OF CASES OF ANEURYSM,

WITH OTHER CASES BEARING UPON DIAGNOSIS.[1]

By WILLIAM M. ORD, M.D., F.R.C.P.

Case 1 (report by Mr. Rossiter).—James H—, æt. 55, a carman, admitted into Charity Ward (18) under Dr. Bristowe, July 20th, 1875, with œdema of legs and shortness of breath.

Family history.—Mother died of phthisis. Of eight children one died of hemiplegia, two died in infancy.

Previous history.—Has had gout. Heavy spirit drinker (7 oz.).

Present illness (his own account).—Seven months ago ruptured himself, this was followed by "gout" in left great toe. While in bed for this he had a sudden attack of left hemiplegia—lost speech for a minute or two—but all passed off in a few hours. A week ago first noticed legs to be swelling. His wife adds:—For a week before admission he had been very sleepless; on one night paced up and down the bedroom threatening to throw himself out of window if she went to sleep.

On admission.—Both legs are œdematous; complains of

[1] These abstracts have been made as brief as possible, and being intended to illustrate diagnosis, record but little as regards treatment.

numbness in left arm, but can grasp firmly with both. No facial signs of paralysis. Pupils equal. Bowels regular. Tongue slightly furred. Temperature 99·1°.

Liver.—Dulness begins two inches above lower edge of ribs (in nip. line), lower edge projects three inches below, smooth.

Heart.—Apex two inches below and half an inch outside nipple. Dulness extends rather beyond right edge of sternum; second sound loud and sharp, heard over large area, most intense at third right costal cartilage.

Right pulse stronger; both are tense; vessels very hard and tortuous.

Urine 1010, acid, pale, clear, copious albumen, no casts. Ordered:

℞ Pulv. Jalap. co., ℈ij, alt. q. mane.
Liq. Amm. Acet., ʒij, ex aq., 6tis horis;
Chloral Hydrat., gr. xx, stat.
Milk diet.

July 22nd.—Slept well. Bowels have acted freely.

23rd.—Much dyspnœa. To be dry-cupped between shoulders.

24th.—

℞ Tr. Ferri Perch., ♏xx;
Tr. Digit., ♏xv;
Ex Inf. Quass., t. d.

26th.—Complains of dizziness; soon tired on trying to read; prefers to sit up, or lies with shoulders well raised. Urine 1009, copious albumen. Bowels not acting.

31st.—Vomited. Decided orthopnœa, yet no lividity.

August 1st.—At 1 a.m. said he could no longer stay in bed; got up and dressed. This morning is sleeping sitting up in bed (unsupported); no cough; sick once. Distinct pulsation felt over second and third spaces on right side, accompanied by a thrill, but no bruit heard; second sound is loud and rather rougher than before. Left arm œdematous. Pupils equal. Loss of memory (as to age, address, &c.), but can talk. Bowels not acting.

℞ Pot. Brom., gr. x;
Chloral, gr. xv, ex aq., 4tis;
Pulv. Jalapæ co., ℈j, stat.

2nd.—Lies half asleep; rambling; words indistinct; sometimes violent; breathes easily. Urine two pints. Bowels

have not acted. Pulse 108; temp. 98·5°. Tongue dry. Prominence of wall of chest at area of pulsation. Rep. Pulv. Ice to head. 10 p.m.—Bowels still confined; now raving. Ol. Crot., ♏j, et rep. s. o. s.

3rd.—Bowels acted after second dose of Ol. Crot. Slept part of night. Refuses to take food. 10 p.m.—Quieter; more sensible; pulsation still very distinct.

6th.—Has gradually become quiet; now understands when spoken to and can answer; is weaker; pulsation more distinct; albumen in urine one sixth (rather less).

7th.—Bowels not acted for two or three days. Rep. Ol. Crot., ♏j.

8th.—Since 8 p.m. has had five copious evacuations of blood, thick and clotted; also three attacks of epistaxis. Right pulse stronger. Right pupil larger. Prominence and pulsation much decreased.

℞ Ol. Tereb., ♏xx;
Aq. M. P., ℥j; stat.

11th.—Urine: sp. gr. 1011, pale, clear, albumen, no sediment.

12th.—Has partly lost motor power of right arm; sensation remains. Further diminution of pulsation. Leg not paralysed. Tongue to right (?); mouth to right (cross paralysis). Bowels acted this morning. Urine passed involuntarily.

FIG. 1. Tracing of Pulse.

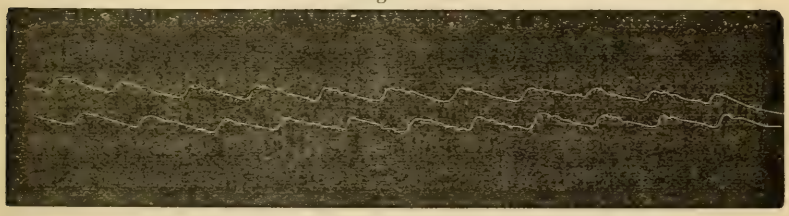
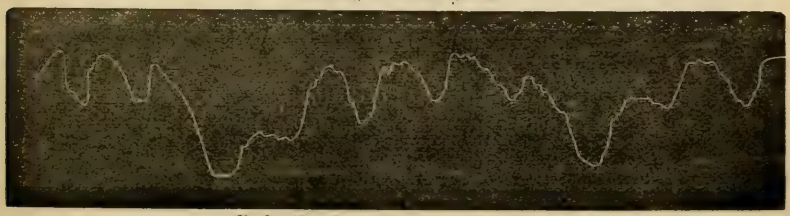


FIG. 2. Tracing of Aneurysm.



Reduplication of 2nd sound at base.

13th.—Facial paralysis gone; that of arm remains.

16th.—Lies (this morning) comatose; cannot be roused; mouth open, apparently drawn to right; breathing stertorous; sordes on teeth; pupils equal, much contracted; conjunctivæ slightly sensible; surface of body insensible to pricking; loud bronchial râles over chest; no sputum; pulsation on right side decidedly less; veins less swollen. Bowels and kidneys act freely; evacuations passed involuntarily. Temp. 103·2°; resp. 60; pulse 112. 4.20 p.m.—Died.

Post-mortem, August 17th.—Body emaciated; rigor still present.

Heart much hypertrophied and dilated on left side; valves entire; weight 28 oz.

Aorta extremely atheromatous, as also the great vessels springing from the arch; endothelium much stained; some more raised recent patches of atheroma more deeply so; endocardium similarly affected.

Ascending aorta very obviously dilated, 3½ inches in circumference about its middle point.

Lungs very œdematous; large part of upper portion of inferior lobe of left posterior and adjacent part of upper lobe in a discoloured gangrenous state, soft, but not breaking down. Right lung 24½ oz.; left 26 oz.

Abdomen.—*Kidneys;* right large; surface granular, speckled, the white points corresponding to nodules; tissue firm on section; slight narrowness of cortex; arteries thick; capsule not thickened, not stripping off clean; weight 12 oz. Left, secreting tissue entirely atrophic. Pelvis greatly dilated, the organ reduced to condition of a sac of size of a small orange. Closely attached to the above, about middle of atrophied renal structure, was a roundish body of a pale yellow colour, on the surface and on section of a softish consistence, but presenting no distinct structure. (Removed for examination by Dr. Ord.)

Spleen large, firm, 11 oz.

Liver firm, edge rounded, 2 lb. 12½ oz.

Brain soft; weight 3 lb. 3½ oz. Arteries at base very atheromatous, rigid. Both ventricles contained blood and serum, more in left lateral; at posterior corner of which was a recent black blood clot, size of a small egg, with laceration of

adjacent brain tissue, clot appearing very close under the surface of posterior lobe of brain on its inferior aspect.

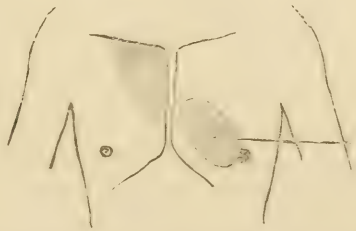
Case 2 (notes by Mr. Rossiter).—J. G—, æt. 33, shopman, admitted into Charity Ward (26) under Dr. Bristowe, June 15th, 1875. He is unable to give any clear account of his illness, being deaf, speaks indistinctly, and is otherwise "non compos." It seems that ten days ago he felt sudden pain in left side of chest, and has had an occasional dry cough.

Present condition.—Pain in left chest in taking deep breath. Temp. 102°; pulse 90, weak and irregular.

June 16th (Dr. Bristowe).—"Better; slept; did not ramble. Double murmur at base. Pericardial friction general, increased

Dulness, systolic thrill, and double (strongly systolic) murmur.

Fig. 3.



Pericardiac friction.

by pressure. Area of dulness increased; dulness to right of sternum, over shaded area, with systolic thrill and murmur, systolic murmur audible (?) in right back, about level of spine of scapula."

Urine.—Sp. gr. 1015, acid, no albumen.

℞ Cat. Lini Præcord.;
Sp. Amm. Arom.;
Sp. Æth. Nitr.;
Ex Aq. Camph. t. d. s.

17th.—Last night, at six, he *ceased to speak;* has not done so since. This morning there is *right hemiplegia* (face, arm, leg); can feel when firmly pinched. In trying to put out tongue it is deflected to right. Right pupil dilated. Bruit and thrill at third right space are more distinct. Pulse 102, feeble; temp. 100·9°. Friction continues.

℞ Pulv. Hyd. cum Rh., gr. xx. (G. F. R.)

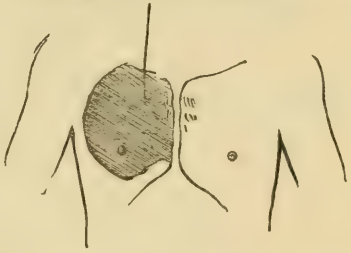
10 p.m.—Partly revived this afternoon; now relapsed. Temp. 103°.

19th (Dr. Bristowe).—"General rigidity (?); bowels open freely. Paralysis of right side diminishing; has spoken; tongue aphthous; friction about same; double murmur at base; temperature, a.m. 97·5°, p.m. 101·2."

20th.—Paralysis almost entirely gone; asks for food; understands when spoken to; friction almost gone.

July 9th.—"Rigor this morning. Pulse 114; temp., a.m. 102·2°, p.m. 100·4°. Upper part of right lung dull (anteriorly),

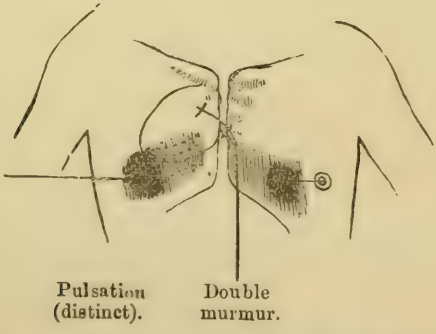
Fig. 4



with absence of respiration and cardiac murmur; area of dulness, pulsation, and murmur increased. The right side is prominent, veins distinct over dull part." (Dr. Bristowe.)

27th.—The thrill became gradually less evident, and last night when examined was not detectable; but this morning

Fig. 5.



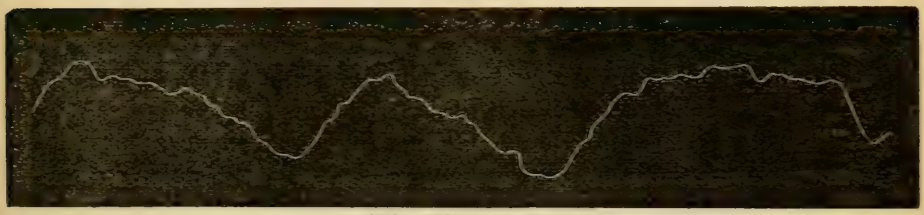
there is very distinct pulsation in third interspace about nipple (right), very superficial. Right pulse the weaker. Pupils equal. Impulse of heart can be feebly perceived on left side; apex cannot be defined; cardiac sounds are very feeble.

Systolic murmur at apex increasing towards base, where there is a double murmur (systolic loudest); it attains its maximum about second space (right) where it is of a rasping character; faintly heard at back. Dulness begins on right side at third rib. On left as in diagram.

Aug. 2nd.—Seems collapsed this morning. Left hand cold, and pulse imperceptible; right pulse felt. The pulsation on right side is very powerful, and some crepitation is heard over it. He lies on right side. Dysphagia. Tongue excoriated. Torpid. Urine, 1015, albumen $\frac{1}{6}$th. Temperature 102·4°.

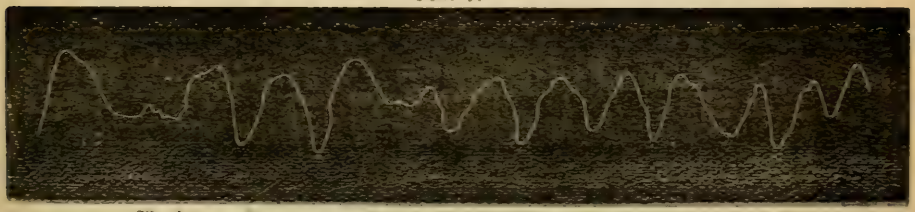
4th.—Much difference of opinion as to the nature of the pulsation on right side has existed for the last month, especially since July 27th, for the circumscribed impulse, accompanied by a retraction of the parietes on each side of it, gives the idea of the *apex of a misplaced heart*. This idea is strengthened by the absence of any impulse detectable by the fingers in the normal region of the heart, and almost entire absence of cardiac sounds there; but then there is distinct and rather increased præcordial dulness, and by means of a sphygmograph applied over region of normal apex this tracing was obtained. (It shows three respirations, but they are distinct breaks in the line corresponding to the pulse.)

Fig. 6.



Pulse 110; resp. 30.

Fig. 7.



The lower one was taken from the pulsating tumour on the right side.

9th.—Right *knee is swollen* and full of fluid, only observed to-day. Right ear congested and swollen with a bleb. Some *purpurous spots* on arm and neck. Right arm smaller than left; much emaciated. Pulse small, scarcely perceptible. Tongue aphthous. Lips anæmic. Temp. 101·2°.

13th.—Resonance deficient on right side posteriorly; respiration deficient with crepitation, which is also present in right lateral region. Both knees distended with fluid; no pain on pressure.

16th.—Sinking. Purpuric patches on feet and legs (large); also on abdomen (small). Effusion in right knee less, that in left about the same. No dyspnœa. Semi-conscious. Died 3.35 p.m.

Post-mortem examination by Dr. Turner, August 17th, 2 p.m.—Body emaciated; no rigor. Effusion in both knee-joints, serous in character. Purpuric spots, chiefly over chest.

Thorax.—On removing sternum, &c., the heart showed a somewhat bifid appearance at the apex. Left ventricle hypertrophied and very firmly contracted, extended below normal position of apex. Right ventricle comparatively relaxed, and contrasting markedly with the other, was situated almost entirely to the right of median line, scarcely overlapping the left. Immediately above the right ventricle appeared a projecting sac, in the normal situation of, and of the shape of the right auricle. The whole was invested by the closely adherent and thickened pericardium. On laying open the right ventricle anteriorly parallel to the septum ventriculorum, and passing the finger through the tricuspid valves, the right auricle was found to be behind and unconnected with the sac presenting itself above the ventricle; there was also a peculiar rounded projection from the roof of the ventricle to the left of the aortic valvular orifice. On injecting water into the aorta it was found that this and the sac lying above at once became tense; the incompetence of the aortic valves being shown at the same time by distension of the left ventricle. Finger introduced into aorta could be passed into the above sac, passing over the calcareous and rigid aortic valves; it was then found that the sac was formed by dilatation of the sinus of Valsalva corresponding to right curtain

of aortic valve, bulging out along the aortic valvular groove, and displacing right auricle backwards. Aneurysmal sac ovoid, about three inches long by two broad. Left ventricle on section very greatly hypertrophied, wall three quarters of an inch. Mitral valve healthy. Weight of heart (with pericardium and aorta) 19½ oz. Aorta healthy below aneurysm.

Lungs œdematous, excessively anteriorly. Right 21 oz., left 14 oz. Right lung generally adherent.

Abdomen.—About one third of a pint of serous fluid in peritoneum.

Kidneys large, 17 oz.; smooth. Capsules not peeling off clean, not thickened. Tissue firm, cutting like lardaceous tissue and having something of that appearance. No staining with iodine. In one a few depressions correspond to old infarcts.

Spleen large, 12½ oz.; soft. Numerous infarcts, large, old, and recent.

Liver large, 4 lb. 2¼ oz; smooth, firm, congested.

Œsophagus.—Much hypertrophied in muscular coat. Not dilated.

Brain, 2lb. 14 oz., rather soft; vessels at base thick, not atheromatous. Middle cerebral (left) occluded by recent black clot. Cerebral tissue adjacent, softened. Arterial branches free on the other side. Lateral ventricles somewhat dilated.

Case 3.—Out-patient, under Dr. Ord, attending in 1875-6. Married woman, æt. 53.*

S. H—, of a pale and anxious appearance, breathing hard, with a wheezing noise in her throat; lips somewhat blue; looking thinner than formerly; right pupil distinctly smaller than left; both pupils acting well with light; had bronchitis of late, with much cough; can lie down on right side, but not on the left; has occasional difficulty in swallowing, the difficulty being referred to the œsophagus, opposite the end of sternum; left cheek, chin, and neck more swollen than the opposite side. External jugular and other superficial veins on left side greatly and permanently distended, though barely perceptible on right side, even during expiration. To the hand no difference of temperature on the two sides of face. In forced expiration

* Notes taken in Feb., 1875.

both sides of chest move well. No pulsation can be detected over manubrium. Heart very feeble; difficult to determine apex beat, which appears to be below sixth rib in line of nipple.

On percussion in first space on right side the note beneath middle of clavicle is good; on striking right edge of manubrium note rises; in middle line of manubrium note higher and distinct dulness; on left edge positive dulness; in left first interspace less dulness than over manubrium, but more than in right interspace; below manubrium the sternum is more resonant.

Heart; dulness begins at upper edge of third rib on left side; second space being rather more resonant than the first. Horizontal dulness natural. On applying the stethoscope a loud rasping sound is heard which appears to be diastolic, and is preceded by a short systolic sound, loudest and clearest in second right inner space at junction with sternum; radiating from this point with decreasing loudness all over chest, being heard also on both sides of the neck. Respiration at right apex is normal; at left apex inspiratory sound is harsh, slight expiratory sound heard, while over manubrium both sounds have a distinct tracheal character; whispering bronchophony is heard over manubrium, but not at apices. Posteriorly all over chest are heard a great many wheezing sounds; right apex (posterior) duller than left. Bronchophony is heard at both apices, but plainer at left than at right. Murmur not heard beneath left scapula; murmur heard faintly at left apex (posterior) but not at right.

Temperature, first observation at the end of six minutes after ergot; right temple, 92·8°; left, 91·1°.

Second observation, at the end of eight minutes: right temple, 95°; left, 92·8°.

Third observation, at the end of another six minutes: right temple, 95°; left, 95·5°.

Pulse has none of the characters of aortic regurgitation.

The case has been under observation for several years, with very little alteration in the size of the aneurysm. But there has been a curious variation in the pressure on the cervical sympathetic. Dr. Ord has record of nearly thirty observations on the state of the pupils and the temperature of the cheeks. In about a third of these the left pupil was more contracted than the right; in the remainder the condition was reversed. It

was observed that whenever the left pupil was more contracted the patient's suffering was increased; and it was concluded that this was due to the marked increase of bulk or distension of the aneurysm and increased pressure on the left cervical sympathetic.

Under the influence of ergot the symptoms always abated, and the contraction of the pupil diminished. As a rule, the temperature varied with the pupils, being higher on the side of contraction.

Case 4.—C. C—, æt. 49, widow, out-patient at St. Thomas's Hospital in February, 1871.

Mother died, æt. 78; father at 32, of typhus.

About two years ago she felt suddenly a choking sensation behind the manubrium, followed by faintness and vomiting of blood. After this she began to suffer from beating in the neck.

When she came under care she stated that besides suffering from the "beating" she had difficulty in swallowing. She felt very faint when needing food, and when food was taken she had a dead weight behind the sternum, and no relief therefrom till the food came up again or passed down. It did not hurt her when she ate, but it "lay afterwards."

Her face was dotted over with venous stigmata. The right pupil was larger than the left. The ear and cheek of the right side felt better than the corresponding parts on the left. The neck also presented stigmata; there was obstruction of the left, not of the right external jugular vein.

There was a pulsating projection above the notch of the sternum, filling up the space between the lower ends of the sterno-mastoids, extending $\frac{7}{8}$th of an inch above the bone, and measuring $1\frac{7}{8}$th inch across, $1\frac{1}{8}$th to the right, $\frac{6}{8}$ths to the left of median line. There was little or no projection of the sternum, but slight pulsation could be felt over the manubrium and sternal end of right clavicle at the end of expiration. The vocal vibration was a little stronger below the right clavicle. On percussion the upper part of the blade of the sternum was duller than the manubrium. The second sound of the heart was very loud and ringing along the course of the aorta and innominate from the right sterno-clavicular articulation down

to the fourth cartilage, and along the sternum to the xiphoid cartilage, being most intense from the second to the fourth cartilage and over the corresponding part of the sternum. Over the left sterno-clavicular articulation a limited soft diastolic murmur was heard. Over the top of the manubrium a distinct double murmur was heard, the diastolic element being louder, longer, and smoother. Over the tumour the first and second sounds were loud and ringing. There was no affection of lungs and no hypertrophy or displacement of the heart.

The temperature of the face as recorded after two minutes exposure was, in front of the right ear, 87·9°; left, 89·3°.

The experiment was repeated with the following results: in front of right ear, 88·84°; left, 89·3°.

Twenty drops of liquid extract of ergot were prescribed to be taken three times a day.

The report at the end of a week (February 22nd), was: "Looks much brighter, less purple, superficial veins less injected, and muscle-markings on face much more distinct. On left side the integument below the lower jaw is swollen and pendulous. No vein visible on right side, and in the left the jugular is visible for about an inch, half filled, scarcely more so during systole and expiration. The integument over the tumour has a doughy feeling. She has not had any of the suffocative feelings from which she formerly suffered; can swallow comfortably, and also can keep her food down. Temperature in front of right ear, 85·2°; left, 89·6° after two minutes exposure.

Ergot was now administered and tracings taken. At thirty-five minutes the pupils were larger than before the ergot was taken. At forty-six minutes the temperature in front of right ear was 88·2°; left, 89·9.

A cast taken from the tumour before ergot was applied, after the ergot had been given twice within an hour, and was found to fit quite loosely, indicating considerable reduction.

The ergot being continued she reported on the 5th of April that she felt better, and could go up stairs without distress; that she breathed more easily; that she swallowed without pain, and never brought up her food; that she slept badly because her head wandered, but that was not so bad as before; that

she could sleep lying down, whereas formerly she could not on account of the beating; the left eye ran a great deal, and had been closed for two days the week before. The left jugular underwent more changes with respiration than before. The tumour had not altered in size. The right side of the face was now the warmer—right side, 91°, left, 91·1°.

From this time she took the ergot less regularly, until in June she felt herself worse. She then took it regularly, but when examined on the 5th of July, the tumour had increased to two and a half inches transversely, one inch above sternum vertically, and there was distinctly visible pulsation over the upper part of the manubrium. She felt the beating more, had more dyspnœa, and return of dysphagia. Temperature, right side of face, 96°; left, 92·4°.

By arrangement she had not taken ergot for two days before this observation; and she stated that she had had much difficulty in refraining from it.

In ten minutes after a dose of ergot the pulsation of the tumour was less violent; it was reduced in all dimensions; and she felt much relief. She stated *a propos* of this that she not seldom took extra doses of ergot in the day to obtain relief.

Shortly after this observation she discontinued her attendance.

Case 5. *Aneurysm of abdominal aorta.*

D. F—, æt. 62, pensioner; out-patient in February, 1871. This patient applied for treatment on account of "disease of the heart." On examination the heart was found to be enlarged, and also displaced downwards and to the left. As there was no indication of valvular or renal disease, and none of alteration in the lungs or of tumour in the chest, search was made for any condition which might favour elongation of the thoracic aorta. On stripping the patient a pulsating tumour was found in the median line of the abdomen, just above the navel. When his attention was drawn to this he said that he had noticed it for some years. He complained chiefly of a feeling of "stagnation" in the lower part of the chest. Asked to explain this word more fully, he stated that there seemed

to him to be a conflict between his breathing and the action of his heart, then a flutter and feeling of suffocation, and he felt ready to fall down. He had had it for nine years, but it had been worse the last five. He had no pain in the belly, only "wind," which gave him much trouble. There was no dysphagia, pain in the back, or pain in the legs. There was no history of accident, intemperance, syphilis, or fever.

The pulsating tumour occupied the space between the end of the xiphoid cartilage and the navel. The whole tumour pulsated at all points, and by placing the finger flat against its margin it could be felt to expand in all directions with the pulsation. The pulsation of the heart was not very easily separable from that of the tumour. On several occasions a pulsation, supposed to belong to the heart, was felt between the xiphoid and sixth costal cartilages; and on placing one stethoscope at that point, and another over the tumour, it was evident that the stethoscope placed over the heart vibrated first in each pulsation. The position of the tumour was not affected by respiration. By measurement the top of the tumour was half an inch below the tip of the xiphoid, the bottom about the same distance above the navel; the right boundary was nearly two inches to the right, the left an inch and three quarters to the left, of the median line. The pulsations were regularly unequal, alternate beats being stronger and weaker. The idea suggested by these movements of the tumour was that it was completely filled only in every second systole of the heart. The heart sounds were normal, except for excess of diastolic shock at the base; they were conducted over the tumour. A systolic murmur, however, was heard, with the stronger beats over the tumour—heard distinctly when the naked ear was applied lightly over the tumour so as to avoid pressure and the so-to-speak artificial production of murmur.

There was in this case a difference in the size of the pupils, the right being the smaller; the same side of the face was decidedly warmer than the opposite side, but no other signs of thoracic aneurysm was present.

Numerous observations were made in this case with ergot. Thus, on February 7th, 1871, ergot was administered at 10.58 a.m. in presence of Dr. Sibson. At 11.15 careful measurements were taken, and the tumour was found to have con-

tracted one inch vertically, three quarters of an inch transversely; the two beats were nearly equalised; the murmur almost lost; the range of movement much diminished. Tracings taken at successive periods with the cardiograph are adjoined. See p. 115.

After this ergot was regularly administered in doses of twenty minims of the liquid extract three times a day.

On the 14th he reported himself to be on the whole better, though feeling a pain as of stagnation of wind. He felt himself "looser on the chest and better able to move about." Temperature on the right side of face—the side of the contracted pupil—91°, on the left side 89·6°. The tumour was decidedly smaller than before treatment. This was determined by the application of a gutta-percha cast taken at the first observation. After a further continuance of the ergot for three weeks the local conditions were little changed, but the temperature of the two sides of the face was reversed; right 90·2°, left 92·0°. Several weeks later the tumour had undergone further diminution, and no longer produced visible pulsation. Its recession made accurate measurement impossible. The patient was better in every way—in general health, in the matter of pain, and in ease of movement. After this he ceased to attend.

Case 6.—John S—, æt. 44, gardener; Beddington; admitted into Charity No. 13, under Dr. Ord, on November 22nd, 1877.

Died November 25th, 1877. Three days in hospital.

Previous history.—Some fever when a child (not known what), good health subsequently. Laid up three years ago with attack similar to present. "Doctor said heart affected."

Present illness.—Began five weeks ago with shortness of breath, lasting for a short time only. Returned to work. Swelling of hands and feet one week. Face since swollen.

On admission.—Legs very œdematous; feet very blue; arms œdematous; face livid. General anasarca and lividity.

Heart.—Double murmur at apex; loud double murmur at base. Apex 3 inches outside nipple, between seventh and eighth ribs. Dulness extends to second rib, and 2 inches to right of sternum; 9 inches altogether.

Urine.—1020, copious albumen.

Lungs.—Crepitation all over back. Dulness at right base. Coarse breathing and occasional rhonchus anteriorly.

Liver.—Dulness extends from sixth rib in nipple line to 1 inch below ribs.

Peritoneum contains some fluid.

Pulse 94; respiration 24.

Post mortem.—Dilatation of aorta; degeneration of aorta. Enlarged heart. Apoplexy of lung.

Case 7.—*Double thoracic aneurysm.—Empyema left side.—Gangrene of lower lobe of left lung.*

William P—, æt. 42; shoemaker; Clapham.

Admission.—March 5th, 1878. Died May 23rd, 1878. Seventy-nine days in hospital.

Family history.—Father and mother both died when patient was young. Causes of death unknown. Four brothers, three sisters, all healthy.

Previous history.—Never any illness.

Present illness.—Began two months ago with shooting pain in left side, cough, occasional vomiting and palpitation, dyspnœa on slightest exertion. Pain and dyspnœa worse for three weeks. Expectorated much thick frothy phlegm. Losing flesh rapidly for two months, but has only given up work one week.

On admission.—Looks fairly healthy and well nourished. Lies on the right side as giving him less pain than when on left; severe shooting pain in left side. Coughs, and spits small quantity of mucus. Respiration 24, quiet; pulse 100. Left chest not so freely moving with respiration as right.

Lungs.—Right anteriorly, dulness in 1st interspace extends outwards, 2 inches to right of sternum. Some pulsation here, but no murmur or thrill (aneurysm? or tumour?); tracheal respiration over dulness. Left, over-resonance down to sixth costal cartilage, with harsh inspiration and expiration slightly prolonged. *Posteriorly.*—Right, normal. Left, whole of back dull, except a small tract on level with seventh rib, where there is resonance. Vocal fremitus diminished over lower half,

with œgophonic voice sounds. Vocal fremitus increased over upper half.

Heart.—Impulse diffused. Apex appears to be between sixth and seventh ribs; pulsation at epigastrium, $2\frac{1}{2}$ inches below and in line with nipple; dulness to upper margin of fourth rib above; laterally to mid sternum. Sounds weak, otherwise normal.

Liver.—Dulness from fifth rib to one inch below arch.

Urine.—Sp. gr. 1015, no albumen.

Progress of case.—Up to the 12th March the pain became less acute, and its seat moved near to left axilla.

18th. Dulness at right apex increased down to second rib. Breath and voice sounds diminished; also vocal fremitus. Pain in left side very acute (stabbing).

26th.—Pupils contracted. Pulse compressible. Had an attack of coughing and dyspnœa last night, followed by vomiting. Dulness over right lung from apex to lower margin of third rib, with absence of vocal fremitus; expectorates rusty sputa.

29th.—Dysphagia last evening at tea; had also tracheal respiration followed by retching (used to have it some time ago on exertion).

30th.—Difficulty of breathing after taking anything warm. Rusty expectoration. Heart's apex at junction of ninth rib with eighth costal cartilage. Cardiac dulness extended 1 inch to right.

April 1st.—Choking sensation after breakfast and lunch, at the same time breathing louder.

2nd.—Choking again; over sixth, seventh, and eighth spaces in left axillary line marked tenderness. Sputa more purulent.

4th.—Pain in left side relieved by hypodermic injection of morphia.

7th.—Feels a lump in throat especially after eating; left pulse weaker than right.

15th.—Right pulse still fuller. Still choking sensation after eating; distinct bulging of left costal cartilages from third downwards; sensation of something pressing up against cartilages; liver dull from sixth rib to nearly level of umbilicus.

21st.—Great pain in left side from axilla to edge of costal arch. Dulness from axilla downwards, increasing in intensity

from above downwards, and external to nipple line. Tubular breathing; rhonchus; frothy expectoration. Ordered a hot fomentation to seat of pain.

26th.—Getting worse; bulging of left cartilages more marked from third downwards, especially at junction with ribs. Left side, when pain greatest, "*moves more as a whole*" than does right side over corresponding area, the individual ribs moving less. Cardiac pulsation most marked below, in angle between junction of seventh cartilage and ensiform. Dulness extends to junction of third rib to sternum; sounds at point of impulse normal. Pericardial friction. (Dr. Ord.)

Lungs. — Cough more troublesome; expectoration more copious, frothy; no hæmatemesis. Breathing distinctly tracheal, even when lying down; becoming more marked when sitting up. Dyspnœa on slightest exertion; most comfortable when lying on right side, as then most free from pain and dyspnœa.

Posteriorly.—Dulness on left side from apex to base, more marked below; a line of comparative resonance on level with lower angle of scapula, and less marked from this line upwards. Vocal fremitus diminished, and over lower part absent. Voice sounds less audible over lower part. Some dulness at right base, also tubular respiration and crepitation, also dulness over upper part of apex down to mid-scapula. Laterally the dull area ceases almost abruptly about one inch anteriorly to posterior axillary fold. Tubular breathing and friction over this area, the friction also extending over cardiac region in front.

30th.—Copious sweats for last ten days, especially over head.

May 2nd.—Perspires from waist upwards, still more on head, and especially on left side where pain is. Absolute dulness over left chest front; distant breathing; œgophony at upper part; no friction. This dulness was continuous with the posterior dulness. (?) Fluctuation in left lateral interspaces. Pulsation at end of expiration in second and third interspaces anteriorly. Increased vocal fremitus over left front.

3rd.—Belladonna strapping; much easier. Considerable fulness of left side of neck and superior clavicle region; right superior clavicle region hollow.

7th. — Strapping removed for examination. Breathing became more difficult; choking sensation worse.

8th.—Strapping renewed, much easier after.

9th.—Feels a lump in throat which is pushed back by swallowing.

11th.—Choking worse; voice thick, husky. No solid food swallowed for one week.

14th.—Dulness over whole of left lung, and also over whole of right, except small area over back and outer side. Wasting rapidly.

17th.—Great palpitation and dyspnœa. Was obliged to sit up during night. Sensation of tightness in hypogastrium.

19th.—Slight shiver about 4.50 p.m.; no elevation of temperature; no vomiting.

20th.—Great dyspnœa; unable to lie down.

21st.—Mouth and tongue in aphthous condition.

22nd.—Feet swollen since yesterday. Two morphia injections in twenty-four hours; drowsy this morning.

23rd.—Death, 7.55 a.m.

Post-mortem notes by Dr. Charles, Registrar.—Aneurysm 1″ beyond aortic valve. Sac three inches in diameter, extending three inches to right of median line; sac contains firm clot. Orifice of innominate compressed, narrow. In descending thoracic aorta, occupying nearly its whole length, is a large aneurysm, four to five inches in diameter, and seven inches long; lies on eroded bodies of 8, 9, 10 dorsal vertebræ. Only a small quantity of clot in and over part of sac; sac bulges in pericardium and compresses root of left lung. Right auricle dilated; right ventricle natural. Thickening of aortic and mitral valves. Left ventricle small, walls thin.

Lungs.—Left generally adherent to ribs, especially at lower third where adhesions are firm; and in separating them, an abscess-cavity at lower part of lung is opened containing large quantity of offensive pus. Right lung, upper lobe very œdematous. Left lung completely solid, especially in upper part. Below left lung, and between it and diaphragm, is an empyema, containing a pint and a half of fœtid pus, apparently somewhat recent. In lower and middle lobes, commencing gangrenous broncho-pneumonia. Below the aneurysm, aorta free from dilatation and apparently healthy.

Nutmeg liver, no scars.

Brain.—No atheroma of arteries. Membranes natural; slight atrophy of convolutions, otherwise healthy.

Case 8.—*Aneurysm of abdominal aorta.*

W. B. S—, æt. 31, married; potter; Wandsworth Road. Admitted 27th June, 1878. Died July 17th, 1878. Twenty days in hospital.

Family history.—Father died, æt. 74, jaundice. Mother living, well. Two brothers and six sisters living and well. One brother dead.

Previous history.—Rheumatic fever last Christmas. Had scarlet-fever, smallpox, and measles when a child. (?) Had syphilis thirteen years ago. Never been in army.

Note by Dr. Charles, Medical Registrar.—Had a well-marked musical diastolic murmur when in hospital in January, 1878, was suffering from chronic rheumatism at the time.

Present illness.—Unwell eight months. In hospital three months before admission for acute rheumatism under Dr. Stone; in hospital one month. Since discharge has been out-patient under Dr. Greenfield, suffering from dyspnœa and palpitation. These symptoms have varied in intensity. Worse last month. For last two weeks noticed a beating below ensiform cartilage. Pain in both shoulders for last two days.

On admission.—Fairly well nourished. Complains of palpitation on left side, with occasional shooting pain.

Heart.—Apex between fifth and sixth ribs, two inches below and one internal to nipple line. Impulse feeble. Bulging of cardiac area. Cardiac dulness to lower margin of third rib. Transversely a little to right of mid-sternal line. Loud systolic murmur heard most distinctly at junction of second right costal cartilage with sternum, and propagated down centre of sternum; murmur of a peculiarly musical character. Slight thrill over cardiac area. Pulse 70, regular, rather weak. Systolic element not much altered, but sudden fall.

Abdomen.—Not distended, no tenderness. Beneath costal arch in middle line is some fulness over an area four inches in

diameter. Marked dulness over this area, and distinct pulsation in every direction. A soft bellows murmur audible. No tenderness on pressure, but there has been.

Liver.—Dulness in right nipple line 5½ inches, extending 1½ inches below arch. Margin not well defined. No tenderness.

Spleen not enlarged.

Pulsation in femorals equal. No œdema of legs.

Lungs.—No cough. Expansion good. Anteriorly, no abnormal signs. Posteriorly, breath sounds a little feeble. No other signs.

Tongue pale, moist, thin white fur. Appetite bad; thirsty. Bowels confined.

Urine 1025, clear, acid, no albumen, few phosphates.

Sleeps badly. No headache.

Progress.—July 1st.—Bowels open after medicine. Complains of sharp gnawing pain in right shoulder extending up into neck.

4th.—Pain in right hypochondrium.

15th.—Sharp lancinating pain in left hypochondrium, especially on inspiration. Feels food stop at cardiac end of stomach, followed by flatulence and a tendency to regurgitation. Drinking water aggravates the symptoms at first, then relieves them.

16th.—Right pupil a little smaller than left.

17th.—No appetite since yesterday. At tea each mouthful of food regurgitated; since then has swallowed nothing. Bowels confined. Death at 2.20 p.m. (suddenly).

Post mortem notes by Dr. Charles, Medical Registrar.—Heart weighs 10½ oz. Slight hypertrophy of left ventricle. Atheroma of aorta. Aneurysm of abdominal aorta from its commencement to origin of renals. An anterior unilateral sac forming adhesions to cava, and pressing up lobus Spigelii of liver, also pressing on œsophagus and cardiac end of stomach. Aneurysm has two small cracks on anterior surface.

Note by Dr. Seymour Taylor.—Cause of death not noted in papers, but I remember the cause of his sudden death was due to exertion in pulling himself up by bed rope. He complained immediately of a sharp pain, and was soon collapsed.

Case 9.—*Aneurysm of ascending aorta.—Sudden death.*

George H. B—, æt. 42, shepherd. Admitted July 25th. Died July 25th, suddenly, shortly after admission. Aneurysm of aorta. No history of case.

Post-mortem.—The aneurysmal sac burst into pericardium. Aorta generally atheromatous. Sac size of a medium sized apple, situated 2½ inches above aortic valve. Aortic valve thickened.

Lungs congested and œdematous.

Liver large.

Kidneys large, capsule adherent.

Case 10.—William P—, æt. 51, married; carpenter. Admitted Nov. 25th, 1878. Died April 29th, 1879.

Family history.—No hereditary taint of syphilis, or gout, or disease of vessels.

Previous history.—Had gonorrhœa and chancre twenty-eight years ago. Has been a strong man. Has been in hospital before for aneurysm, and discharged June 28th, 1870. Since then has gradually got weaker. Traces his illness to sudden strain when moving heavy timber (he felt something give way). Thirteen weeks ago fell from a tram car, and was much shaken, with pain in chest. Worked subsequently for a fortnight, then took to bed, stayed in bed seven weeks; paroxysms of dyspnœa; no difficulty in swallowing.

On admission.—Emaciated, anæmic; anxious expression.

Chest.—In right infra-clavicular region there is bulging with pulsation. Bulging occupies first and second spaces; dull on percussion for radius of three inches from sternum. Slight systolic bellows murmur over bulging. Bulging fluctuates on palpation. Double murmur originating, apparently at aortic orifice. Outer and lower part of right side over-resonant. On auscultation loud vesicular breath sounds and sonorous rhonchi. Left side less resonant. Posteriorly, left lower half almost entirely dull (consolidated). Right, comparatively dull (vocal fremitus and voice-sounds not ascertained owing to his feebleness).

Heart.—Strong impulse over lower part of left chest; dulness up to fourth left cartilage; below to edge of costal arch, on right

side to left border of sternum, externally just outside nipple. Second sound not well marked. Double murmur at apex. External veins of chest distended.

Liver displaced downwards; dulness in right nipple line six inches; no nodulation.

Spleen normal.

Abdomen normal.

Limbs.—Upper quite natural; lower swollen, œdematous.

Tongue clean, moist. Appetite good. No sickness. Bowels confined. Mind clear. No headache. No giddiness. Temperature normal.

Urine 1031, acid, lithates, albumen.

November 27th.—Cough; expectoration consists of pus with blood; more cough when lying on right side. Over left apex systolic and diastolic murmur, the latter not well marked; double murmur over aortic valve, and a loud double blowing murmur over area of aneurysmal pulsation.

30th.—Dyspnœa; cough; suffocating sensation.

December 1st.—Pain in right side of head and right arm.

2nd.—Pain in arm continues. Morphia inject ($\frac{1}{4}$ gr.).

5th.—Dulness at left lower part of lung posteriorly; tubular respiration at upper.

6th.—Urgent dyspnœa.

12th.—Pain in right arm gone; left lung dull except at extreme apex; vocal fremitus not diminished; crepitation during inspiration. Right lung resonant; breathing vesicular, but harsh.

20th.—Middle three fifths of left lung resonant posteriorly; large mucous râles all over the chest. Purulent expectoration. Anteriorly, left lung still dull; amphoric breathing in first space. Pulsation visible all over front of chest, especially on right side and at root of neck.

January 3rd.—Pain in left side, increased by eating.

4th.—"Deadening" pain on right side; still pain in left side. No difficulty in swallowing. Left front more resonant than a few days ago, and breath sounds fairly audible, with coarse crepitations.

13th.—Breath suddenly very short last night. Right base now also dull; marked "cracked pot" sound over lower three inches. Left front of chest fairly resonant.

14th.—Emp. belladonna to left side for pain.

15th.—Hypodermic injection for pain.

17th.—Still "cracked pot" sound at right base. Left apex dull for about three inches. Appetite quite gone.

18th to 31st.—Complains of severe pain in chest and left arm, for which frequent injections of morphia.

February 3rd.—Sharp pain in region of aneurysm. Right pupil slightly larger of the two.

11th.—Small clots of blood with sputa.

13th.—Talks incoherently; delirious last night; expression of face vacant.

14th.—Still rambles.

16th.—No rambling, quite intelligent.

24th.—Loud double murmur over tumour and precordial region; the diastolic element being louder and more prolonged.

March 1st.—Middle and lower part of left lung dull, with diminished vocal fremitus; large moist sounds, pectriloquy, and amphoric respiration at middle. Signs of fluid in right pleura. Right pupil slightly larger than left.

April 14th.—Pain most urgent symptom. Gets up an hour every evening, but does not walk about; feels better; occasional dyspnœa and pains in abdomen.

23rd.—An attack of dyspnœa.

28th.—Very prostrate; urgent dyspnœa.

29th.—Death.

Post mortem.—Emaciated. Rigor mortis well marked. Distension of veins, especially of abdomen, lower limbs, and left arm. Scars of old abscesses in both groins. Pericardium healthy. A large aneurysm of the transverse part of the arch of the aorta adherent to first and second cartilages.

Lungs.—Left displaced to left. Cardiac area much increased. Right pleural cavity contained 30 oz. of yellowish red serum. No adhesions. Left pleural cavity almost entirely obliterated, except at lower one third, where were 5 oz. of serum. Adhesions very firm and lung compressed upwards. Right lung, upper lobes extremely œdematous, lower lobe and posterior border very congested, yielding on pressure much frothy fluid blood. The substance of base of lung presents ordinary signs of pneumonia. Bronchial tubes congested, thickened, and contain much pus.

Kidneys.—Left contains at upper end a large cyst; capillaries well marked; congested; cortical portion slightly wasted. Right similar.

Liver.—Left lobe depressed on upper surface posteriorly, probably by hypertrophied heart and aneurysm. Liver in early nutmeg condition.

Spleen congested.

No signs of ulceration in œsophagus. The trachea contains much tenacious mucus. Mucous membrane congested, especially near bifurcation. Shape of trachea altered, being very wide as though from anterior and posterior pressure. No signs of ulceration of trachea.

Heart.—Tricuspid and pulmonary semilunar valves healthy. Left ventricle considerably hypertrophied. On opening aneurysmal sac a large, rather firm clot found occupying upper and anterior part; the upper dilated part of artery showing considerable atheromatous change; and occupying upper part of sac is a small secondary (diverticulum) dissecting aneurysm, about size of an egg. The first aneurysm commenced half an inch from aortic valves, ascending to transverse and descending portions. Considerable atheroma of rest of thoracic aorta.

Left lung collapsed. Marked inflammation of bronchial mucous membrane.

CASE 11.—*Aneurysm of ascending aorta.—Aortic regurgitation.—Effusion in pleura.—Gout.*

Thos. B—, æt. 44, porter. Admitted May 2nd, 1879. Died June 5th, 1879.

Family history.—No history of hereditary disease of heart, nor of hereditary syphilis. Mother suffers from dropsy.

Previous history.—Never typhus. Has had acute attacks of rheumatism. History of syphilis.

Enjoyed good health till a year ago, when he complained of "stitch" in left axillary region, followed by dyspnœa and cough; no hæmoptysis.

Worse six months, especially cough; treated in King's College Hospital for "heart disease and liver disorder;" under treatment there one month; not been to work since.

On admission.—Pain in chest, difficulty of breathing, fluttering sensation in region of heart. Patient thin.

Lungs.—Left apex dull, and heart sounds heard too loudly; breathing tubular. Posteriorly both bases present signs of effusion. Resp. 32.

Heart.—Dulness to upper border of third rib, transversely to left of sternum; doubled first sound at apex. At base a blowing diastolic murmur. Friction over front of heart. Pulse 100.

Liver.—Dulness from seventh rib downwards $6\frac{1}{2}$ in.

Bowels regular.

Urine.—1010, albumen $\frac{1}{10}$th.

Progress.—May 6th: Breathing better in semi-erect position.

7th.—Diastolic murmur at base, over right second space. Water-hammer pulse; no traces of casts in urine. Tophi in ears.

8th.—Delirious during night.

9th.—Cough and dyspnœa increased. Expectoration viscid, bloody. Pupils unequal, right larger. No marked difference between radial pulses. Small amount of albumen.

10th.—Delirious. Pupils equal. Ditto pulses.

13th. Right leg œdematous.

22nd.—Systolic murmur at right of sternum (Dr. Ord).

27th.—Both legs œdematous; albumen increased.

30th.—Considerable dyspnœa; cannot lie down.

June 3rd.—Feels better, wanders during sleep.

5th.—Restless night. Death 2·25 p.m.

Post mortem.—Right lung 1 lb. 5 oz.; left lung 15 oz.; heart 1 lb. 10 oz.; liver 3 lbs. $9\frac{1}{2}$ oz.; spleen $7\frac{1}{2}$ oz.; kidneys $13\frac{1}{2}$ oz.

Body œdematous; neck congested; slight jaundice of conjunctivæ.

Pleuræ contain, right $2\frac{1}{2}$ pints, left $1\frac{1}{2}$ pints of clear serous fluid.

Heart.—Adherent to pericardium (moderately old). Right and left ventricles both dilated, especially left; mitral and tricuspid orifices dilated. Valves generally healthy. Advanced atheroma of ascending and transverse aorta with dilatation. Just above aortic valves a saccular aneurysm, size of a hen's egg, projecting anteriorly down upon septum ventriculum. It contained very little clot.

Lungs.—Brown atrophy.

Spleen large and firm.

Liver.—Ill-defined nutmeg. In some parts firm and difficult to break down.

Kidneys.—Large, dark; cortex of natural size. Capsule adherent, showing, when taken off, well-marked granular surface. Gouty deposits in great toe-joints.

CASE 12.—*Aneurysm of arch of aorta.—Gangrenous inflammation of left lung.—Insanity.*

F. P—, æt. 43, labourer; Bermondsey. Admitted January 24th, 1879. Died September 16th, 1879.

Family history.—None pointing to hereditary disease in vessels or brain; no gout; no hereditary syphilis.

Previous history.—Fourteen years ago, when returned from sea, laid up in Liverpool Infirmary four months with symptoms evidently pointing to rheumatic fever; no palpitation. After this had ague and dysentery in China. Never had gout; no history of intemperance. At times has strained himself, and felt much distress on one occasion about two months ago. Dyspnœa for some time past; worse seven weeks; cough, dyspnœa, pains running up sides of neck.

On admission.—Thin, lips blue; complains of pain (hard grating) in chest, extending to back; dyspnœa, cough, and inability to lie on right side.

Chest.—Inner ends of second costal cartilage prominent. *Left side* over-resonant, amphoric breathing in first space; elsewhere tubular sounds with occasional rhonchi; increased vocal fremitus and resonance. *Right side,* respiration harsh, expiration prolonged; no increase of vocal fremitus or resonance. When breathing stopped, pulsation visible at *upper part of middle of* sternum, where there is dulness 2 by $2\frac{1}{2}$ inches. Over lower part of this area a systolic murmur audible.

Posteriorly.—Left side dull, completely so at base; at apex amphoric respiration with crepitations; in middle tubular sounds; all over whispering pectriloquy. At base friction with signs of effusion. *Right side* resonant, healthy.

Heart.—Impulse strong, diffused; impulse in fifth space,

one inch below and a little internal to nipple. Dulness up to upper border of third cartilage, to a little to left of left border of sternum, externally, to nipple line. Systolic murmur over whole of heart, also over orifices at base; second sound roughened. Pulse 108, regular, feeble; radial pulses equal.

Tongue furred; no sore throat; no dysphagia; bowels confined.

Liver 3½ inches at nipple line.

Spleen.—No enlargement.

Abdomen soft, retracted. Right inguinal hernia.

Skin very active.

No headache, no giddiness, no disturbance of special senses.

Urine.—Sp. gr. 1024, no albumen.

January 27th.—Area of dulness at top of sternum diminished. Expectorated a partially decolorised clot, size of a bean.

31st.—Left front of chest totally dull (Dr. Ord).

February 1st.—Right chest half inch larger than left, left apex completely dull, also left back, with breath sounds absent over a large area.

5th.—Shiverings with perspiration; expectoration muco-purulent.

6th.—Resp. 40; pulse 84, regular; left apex dull; amphoric respiration.

7th.—Another rigor last night for half an hour. Temperature up to 102·2°; resp. 32; pulse 80.

10th.—Frequent attacks of dyspnœa. Left chest in front completely dull. Respiration rather tubular than amphoric. "*Harsh inspiratory sounds, with amphoric respiratory sounds on right side.*"

13th.—Perspiration; chilly before, and hot after.

18th.—Paroxysmal attacks of dyspnœa; cough easier since Liq. Morphiæ Acet. administered.

28th.—Pricking pains in left axilla; enlargement of superficial veins over area of dulness.

April 15th.—Bowels extremely constipated, often five days without relief.

24th.—Urine sp. gr. 1028, no albumen.

28th.—More blood in sputa.

May 1st.—Chilly; pains in joints; temp. 100·8°.

8th.—Weak; pain in right second space close to sternum;

throbbing; noise on coughing. Murmur over second right space not so loud as formerly; junction of second right cartilage to sternum is tender on percussion. Bad attack of dyspnœa.

10th.—Painful to move right arm.

20th.—Much weaker and thinner.

June 6th.—Drowsy and low spirited.

14th.—Still drowsy; urgent coughing; expectoration muco-purulent.

15th.—Left pupil smaller than right; obviously increasing distension of veins in left side of neck (Dr. Ord).

July 2nd.—Right pupil slightly the larger.

12th.—Delirium during night.

August 26th.—Began to expectorate much purulent matter, 6 oz. in twelve hours. Puncture at angle of left scapula with trocar, bringing away thick, offensive, greenish pus with red tinge. Another puncture 1½ inch outside angle, removing perfectly clear serum; similar purulent fluid expectorated since yesterday.

28th.—Still expectorates purulent matter.

September 1st.—Again tapped with aspirator in same position whence pus flowed, but only few drops of thick, highly offensive, blood-stained pus; needle only passed one inch inwards, but distinct cardiac pulsation imparted to it. After operation he coughed up about 1 oz. of bright frothy blood.

4th.—Still muco-purulent sputa tinged with blood.

11th.—Bad attack of coughing, copious muco-purulent sputa. Pulsation over region of manubrium more marked; a distinct systolic murmur audible all over this region.

15th.—Sputa copious, tinged with blood. Delirium.

16th.—Death.

Post mortem (thirteen hours after death).—Emaciated; rigor mortis well marked.

Peritoneum.—60 oz. pale serum. Right pleura 12 oz.; pericardium 10 oz.

In superior part of anterior mediastinum a tumour reaching to top of sternum down to lower border of fourth rib, and to right of sternum opposite first and second ribs. Tumour intimately adherent to under surface of ribs and sternum. *Left pleural* cavity obliterated by firm adhesions. End of first, whole of second, and commencement of third portions of arch

of aorta dilated into a large, irregular, aneurysmal sac; sac measures 5 inches antero-posteriorly; pale coagulum on outer surface, rest of sac contains small quantity of bloody serum. "This coagulum was very firm, forming a complete pad, as it were, and such as would effectually muffle any sounds generated in sac or at base of heart." (Dr. Seymour Taylor's private notes.)

Left lung much compressed by sac; tissue broken down into large irregular cavities containing fœtid firm substance; interstitial tissue increased into large streaks. Bronchial tubes much congested and dilated; numerous small abscesses throughout lung; lung substance collapsed all over.

Heart normal.

Liver.—Amyloid degeneration.

Spleen.—Amyloid degeneration.

Right tunica vaginalis communicates with peritoneum; contains a quantity of pale serum with flakes of recent lymph.

Brain and membranes healthy.

Case 13.—*Aneurysm of ascending aorta.*

E. D—, æt. 56, stableman; Westminster. Admitted March 7th, 1879. Discharged August 9th, 1879, relieved.

Family history.—Mother died of consumption. No other known hereditary taint.

Previous history.—Never had smallpox. Rheumatism in ankles, knees, and other joints twenty-six years ago.

Present illness.—Began three years ago with sharp pain in chest. Was in-patient (Westminster) five weeks after first symptom; under treatment then five months; after this went to convalescent home for a month. Then resumed work for five months. Again admitted to Westminster and transferred to St. George's, then back to Westminster, and finally transferred hither.

On admission.—Fairly nourished. Supra-clavicular and supra-sternal spaces obliterated. Veins of neck prominent. Complains of pain in chest.

Chest.—Anteriorly, left over-resonant. A circular area of

dulness $2\frac{3}{4}$ in. in diameter found over body of sternum and right side of chest, upper limit to second rib, lower limit to fourth space close by sternum, laterally from left border of sternum to 1 in. to right side of sternum. Over this area pulsation and thrill felt. Vocal fremitus felt all over front, except over this circular area. Breath sounds normal, except weak at apices and absent over tumour. Posteriorly, slight dulness over left apex. Vocal fremitus more marked on right side. Breath sounds feeble, otherwise normal. Resp. 18, regular. Slight cough. Muco-purulent expectoration.

Heart.—Impulse in sixth space, 2 in. below nipple and $1\frac{1}{2}$ inside; strong and diffused. Area of dulness upwards to fourth space, and on right side to just inside nipple line. First sound reduplicated at apex. Both sounds very harsh. Systolic and diastolic murmur over base. Reduplication of first sound heard down to ensiform cartilage. Double murmur at base is slight, heard over pulmonic valves, and very loud over aortic area and over the circular area of dulness. Pulse 72 collapsing audible. Arteries visibly pulsating.

Pupils equal; sight normal; no deafness.

Digestive system.—Slight fur on tongue; bowels confined.

Abdomen.—Nil.

Liver.—Dulness to $1\frac{1}{2}$ in. below nipple, extending downwards $4\frac{1}{2}$ in.

Spleen.—Nil.

Urine 1014, albumen, trace.

March 17th.—Pain under right scapula on swallowing.

18th.—Pain on deglutition worse. Moist sounds over lower scapular and infra-scapular regions on right side.

28th.—Woke with momentary dyspnœa.

April 10th.—Sharp pain down left border of sternum.

21st.—Nipping pains at times in right arm.

May 15th.—Sharp pain under right breast.

17th.—Again sharp nipping pains in right breast, and also sharp pain in right infra-mammary region.

June 9th.—Acute pains in right arm.

27th.—Sharp acute pains in right arm.

July 5th.—More pain.

8th.—Pain in right side of chest as well as right arm.

17th.—Sensation of choking behind manubrium. Veins of

neck fuller. Cough, but no expectoration. Some crepitation posteriorly.

August 9th.—Discharged relieved.

Case 14.—*Aneurysm of arch of aorta.—Paralysis of left recurrent laryngeal nerve.—Pleurisy of left side.*

Thos. W—, æt. 53. Admitted May 13th, 1879. Discharged July 9th, 1879. Father died, æt. 51, "rheumatic fever and cancer." Was in army and discharged for cancer. Mother died, æt. 74, shock after operation. One brother died, stoppage of bowels; another brother died from tumour in axilla. Married nineteen years. Never any family. Wife no miscarriage.

Previous illness.—Never rheumatic fever. Had ague. No history of syphilis noted.

Present illness.—Began in October 28th with sharp cutting pain in epigastrium. Cough since onset of pain; losing flesh rapidly.

Condition of patient.—Heart: impulse diffused. Dulness to upper border of fifth cartilage transversely to 1 inch to left of sternum; First sound reduplicated at apex; and over right border of sternum; a murmur with first element traced all up right border of sternum, but especially in third space; second sound reduplicated at base. Pulse 70; arteries thickened, tortuous. No difference in radial pulses. Left cephalic vein has beaded appearance in two places.

Tongue coated; feels food collect at lower end of gullet opposite xiphoid cartilage and then it passes on.

Abdomen normal.

Liver.—Margin below costal arch.

Spleen normal.

Arcus senilis well marked. Sight good: pupils equal.

Urine.—Sp. gr. 1014; no albumen.

Chest.—Rounded. Sternum convex. Chest moves feebly with respiration. Accessory muscles of respiration prominent. Pulsation in first, second, and third right spaces, extending further to right in second space. Complete dulness over first piece of sternum and corresponding intercostal spaces

for one inch on both sides. The dulness extends downwards and to the right as far as fourth cartilage. Over this area vocal fremitus. Heart sounds loud, also tracheal respiration. Partial dulness at right apex, with physical signs of consolidation. Partial dulness at left apex.

Chest posteriorly.—Right upper third dull, rest resonant. Left, dulness at lower part.

May 17th.—Difficulty of swallowing. Can swallow easier when leaning over to right side than when sitting up.

21st.—Vomited.

22nd.—Sick twice.

24th.—Cannot lie on left side. Sweats much at night.

June 3rd.—Great precordial pain. Hypodermic injection.

7th.—Shooting pain all over his body, especially over region of heart and left arm.

18th.—Vomited.

21st.—Temperature rose to 100.° Vomiting.

July 2nd.—Seems better. Cough still troublesome.

7th.—Presented relieved.

Readmitted November 27th, 1879. Died April 3rd, 1880.

Emaciated, sallow, complaining of cough and pain in chest. Voice high pitched, sometimes hoarse; hoarse cough, with muco-purulent expectoration; occasional dyspnœa. Chest rigid, prominent forwards, drawn in at sides. Manubrium flexed on gladiolus. The prominence is symmetrical, but in first right intercostal space pulsation can be felt. Arteries of right neck pulsate freer than those of left.

Heart.—Apex beats feebly 2 inches below nipple, and in nipple line. Dulness from apex to one finger's breadth of right of sternum; at apex a short systolic murmur not heard in axilla; no murmur at upper limit of cardiac dulness. Over manubrium and slightly to right is a patch of dulness over which pulsation is felt, and where a soft systolic murmur is heard, loudest to right of sternum. Pulse 68, occasionally intermittent. No marked difference between pulses; veins of left arm more distinct than right.

Lungs.—Anteriorly normal, except occasional mucous râles. Posteriorly, breathing vesicular, feeble at left base.

Abdomen.—Nothing abnormal.

Pupils very small, equal; sleeps well. At times a gnawing pain in back or front of chest, with paroxysms of acute pain.

Urine.—Sp. gr. 1028; clear, no albumen.

Larynx.—Paralysis of left vocal cord in position of adduction.

December 3rd.—Much pain in left hypochondrium; sleeps badly.

6th.—Still pain; injection of morphia.

9th.—More pain; left hand somewhat swollen.

12th.—Swelling of left hand and forearm; distension of left cephalic vein.

22nd.—Some difficulty in swallowing; pupils equal. No œdema of legs; attacks of dyspnœa at times.

January 19th, 1880.—Severe pain in precordial region when lying down.

23rd.—Some pain in joints; dysphagia; palpitation; pulsation in fourth space to right of sternum.

February 2nd.—Severe attack of pain.

3rd.—Much pain; vomiting; seems weaker.

16th.—Had severe pain (two hours), beginning in region of heart, and extending across to opposite side. For some hours lost consciousness. For last week has had defective vision; on looking at any object for a short time and then looking upwards every object seems quivering.

March 1st.—Pupils very contracted. Voice still shrill, and at times whispering in character. Been away home for a few days, during which time he has had little or no sleep. Died soon after return.

Post mortem.—Second costal cartilage and suture between manubrium and gladiolus very prominent. Ulcer on metatarso-phalangeal joint of right great toe; joint rotated outwards, and contains gouty deposit. Left metatarso-phalangeal joint similar, but no ulceration of surface. Skull cap natural. Dura mater natural. Pia mater.—Vessels at base rather patent; no distinct atheromatous deposit to be seen.

Brain natural, 3 lbs. 3 oz; subarachnoid fluid much increased, otherwise natural.

Right pleura normal.

Left pleura.—A number of old adhesions between two layers in middle of convex surface of lung, as also between inner surface and pericardium.

Pericardium displaced to left side. Visceral layer congested on posterior surface of heart. A number of recent adhesions glue both layers together on posterior surface of left ventricle.

Heart.—Right side contains partly decolorised clot; left side contains similar clot. Left ventricle slightly dilated, and walls hypertrophied. All valves healthy.

Aorta.—The bend between first and second portions, all transverse and descending portions of arch, also upper half of thoracic aorta much dilated into a large aneurysmal sac, which extends one inch to right of, and three inches to left of, sternum. It presses on manubrium, pushing it forward with upper part of gladiolus and adjacent second costal cartilage (not eroding them). Posteriorly it presses upon œsophagus and trachea, and deeply erodes bodies of third, fourth, and fifth dorsal vertebræ. Left bronchus firmly pressed upon, and left vagus and left recurrent laryngeal nerves are deeply embedded upon anterior and posterior surfaces of sac respectively. To the left side the sac presses upon the main surface of left lung. The aneurysm has thick walls, and is filled by a large quantity of laminated fibrin and dark coloured clot.

Right lung.—Anteriorly emphysematous; substance much congested and œdematous posteriorly, and presents a few patches of recent broncho-pneumonia. Bronchi in both lungs much congested, and contains a large quantity of muco-purulent fluid.

Peritoneum natural.

Liver nutmeg, otherwise natural.

Spleen 4 oz., healthy.

Kidneys large; capsules adherent; cortex firm and congested. Section seems rather granular; a small deposit of urate of soda in one of the pyramids of the right kidney.

Stomach and intestines healthy.

Case 15.—*Aneurysm of descending aorta.*

Edwin V. S—, æt. 26; cabdriver. Admitted November 7th, 1879. Discharged December 2nd, 1879.

Family history good; all healthy.

Previous history.—Had rheumatic fever four times; after last attack used to play cricket. No palpitation. No history of syphilis. Had frequent quinsies.

Present illness.—Twelve months ago was kicked at by a horse (not struck), and in avoiding blow he fell down; no pain in chest, but felt suddenly faint. Had some brandy, and after a time resumed work. Afterwards whilst walking home was seized with "grabbing" pain in left chest, became unconscious and fell, soon recovered, walked home, slept well, and resumed work next morning. Had numerous subsequent falls and temporary insensibility. No palpitation nor dyspnœa. Was in London Hospital for three months, during which time had chloral and injections of morphia for pain in chest. Subsequently dyspnœa, palpitation, and dysphagia came on. Seven weeks ago had attack of severe pain in chest; was unconscious for three days. At same time had loss of power in left arm, without pain; but had pain in heart relieved by arm being lifted; also at same time had swelling of knees. Power of left arm gradually been returning. Says pupils were said to be contracted to pin's point; he himself has noted right larger than left. Since this attack has done no work. Had "bronchitis" and hæmoptysis during last seven weeks.

On admission.—Moderately well nourished. Complains of pains in region of heart, shooting through to shoulder. Paroxysms of dyspnœa. Some change of voice. Tongue protruded slightly to left. Defective movement of mouth. Some dysphagia.

Chest well formed, slight prominence over cardiac region. Absolute cardiac dulness, bounded by upper border of fourth rib, left border of sternum, and $1\frac{1}{2}$ in. below nipple in nipple line. At apex reduplication of first sound; first element clear, second element associated with murmur. Diastolic sound clear. Visible pulsation in epigastrium and at apex. Over aortic orifice a double murmur, or rather one prolonged murmur indistinctly separated into two parts, the first heard along vessels of neck, the second propagated down sternum. Visible pulsation of carotids.

Lungs resonant; breathing vesicular.

Liver apparently normal.

Spleen the same.

In apex of costal arch is a murmur, probably associated with tricuspid valve.

Legs become cold towards evening, have been swollen, but œdema disappears with rest; pain also in knees.

Has headache; feeling of languor. Right pupil slightly larger. Eyesight good.

No sickness since admission. Constant vomiting after food before admission.

Urine 1028, trace of albumen, no sugar.

November 12th.—Severe shooting pains in chest and dyspnœa. (Injection of morphia.)

17th.—To every pulse at wrist there are two impulses at the heart. The impulse synchronous with radial pulse is accompanied by reduplicated first sound, a murmur followed by a second sound. The sounds with second impulse seem fairly normal, and there is no murmur. Has constant throbbing pain referred to sternum and epigastrium. Sleeps badly. Right pupil slightly larger. Right pulse decidedly stronger.

18th.—Pupils equal.

20th.—Pupils equal.

23rd.—Much pain in chest. Right pupil is larger than left. No severe attack of dyspnœa. Pulse 32.

26th.—Right pupil larger. Feet and legs feel cold. Left arm numb from shoulder to elbow. Vomits everything. Choking sensation when heart beats quickly.

28th.—Slept badly from palpitation. Much pain down arm. Pulses equal. No enlargement of veins of neck.

December 2nd.—Discharged relieved.

Case 16.—*Aneurysmal dilatation of pulmonary artery.—Deficiency of interauricular septum.—Traumatic curvature of spine.—Transposition of viscera.*

Mary Ann T—, æt. 34, single. Admitted October 29th, 1879. Died November 8th, 1879.

Family history.—Father died of phthisis; mother died of hemiplegia.

Previous history.—Had measles, but no other severe illness; has always suffered from palpitation. At fifteen years was unconscious for two days. Had occasional epileptic fits, last

twelve months ago. When seventeen years old was "blown up" in a cartridge manufactory, buried in ruins, and during extraction her right leg was broken and spine injured.

Present illness began three weeks ago with pain in stomach, not affected by food; no vomiting.

October 27th.—Vomited a quantity of black blood, great pain before vomiting, with violent palpitation.

29th.—Vomited another larger quantity after violent exertion.

On admission.—Patient ill-nourished, anæmic; sclerotics white, glassy; pupils equal.

Abdomen not distended, tenderness in epigastrium, where there is obvious pulsation. Chest much distorted with prominence over cardiac region and strong backward bow of spine. Visible pulsation extending downwards and outwards to two inches below and inside nipple, upwards to second space. Thrill all over cardiac area.

Heart.—Dulness from first space above; to midsternum. At apex strong systolic murmur, also over tricuspid and basic orifices. Pulsation of veins in neck. Thrill in supra-sternal notch.

Lungs resonant.

Liver.—Dulness extends as a band two inches broad in vertical direction, commencing one inch below nipple; resonant region under costal margin.

Tongue clean. No dysphagia. No vomiting since admission. Bowels confined. Pupils equal. Catamenia regular.

Urine 1022, acid, no albumen.

31st.—Slept well; pain in left side. In the afternoon vomited a clot of almost three ounces. In evening vomited blood mixed with ice water, altogether about one pint. Treated with tannic acid, and then ergotin injection.

November 3rd.—No more hæmatemesis. Better.

6th.—Vomited blood again, small quantity.

7th.—Cough troublesome; vomited "coffee grounds," no sarcina seen in it. Pain in epigastrium from continued vomiting. P.M.—Respiration 32. Pulse 60, very small, irregular.

8th.—Died.

Post mortem.—Congenital malformation of heart. Incom-

plete development of interauricular septum. Transposition of abdominal viscera. Angular and lateral curvature of the spine. Body fairly nourished. Below average height. When laid on back body inclines to right. Thorax compressed laterally. Sternum and costal cartilage prominent, especially over region of the heart. Spinal column presents another angular curvature, involving ninth, tenth, and eleventh dorsal vertebræ, apex of triangle situated in spine of tenth vertebra. In this region, also, slight lateral curvature, convexity directed to right. Ribs of both sides especially bulged backwards at their angles; this is especially noted in those ribs in immediate neighbourhood of curvature. Veins of neck distended by partly decolorised clots, otherwise natural.

Pleuræ healthy. Pericardium measures 7½ inches vertically, 7 inches transversely in line of nipple. It reaches from middle of manubrium to base of ensiform cartilage, and is firmly adherent to posterior surface of gladiolus. A number of old, white, thickened patches, from ½ to 1 inch in diameter, in visceral layer, on anterior surface of right ventricle, on front of great vessels, and at base, where in some places they project in conical villous masses.

Heart.—Anterior surface almost wholly formed by right ventricle. Apex formed by right ventricle. Right auricle and right ventricle much dilated and hypertrophied; average thickness of ventricle rather more than half an inch. Cavities contain large quantity of decolorized clot. Left auricle much dilated, walls hypertrophied; contain similar clot. Left ventricle contracted and wall slightly hypertrophied, cavity empty. Interauricular septum extremely thin, leaving a large crescent-shaped opening at its lower border, measuring 1½ inch from before backwards, and ½ inch broad at broadest part. Above this opening there is a circular perforation in centre, with rounded margins, ¾ inch in diameter. Pulmonary valves healthy, opening admitting three fingers. Tricuspid has posterior flaps small in size, otherwise normal. Aortic valves healthy, orifice admitting two fingers. Mitral somewhat generally thickened by fibrous deposit. Opening constricted, admitting two fingers with difficulty. Pulmonary artery, with its right and left branches, much dilated, filled with dark jelly clot, and completely overlapping aorta as the heart lies *in situ*. Ductus arteriosus closed and interventricular septum complete. Calibre

of arch of aorta reduced in size, admitting rather more than one finger.

Right lung.—Has rudimentary third lobe, substance much congested and œdematous.

Abdomen.—Falciform ligament of liver lies on left side.

Liver 3 lbs. 6 oz., projects 4½ inches below ensiform cartilage, and extends completely from side to side of body. Right lobe measures 8 inches antero-posteriorly, and is altogether larger than the left. Gall-bladder on its under surface. Fundus touching abdominal wall, ½ inch inside ninth left costal cartilage Substance of liver nutmeg, friable, and probably fatty.

Spleen lies in right hypochondrium, made up of a number of lobes arranged more or less in form of a horse shoe, the point of shoe directed upwards. Substance congested, otherwise natural. 5½ oz.

Kidneys.—Rather quadrilateral in shape; capsule rather adherent; substance firm, cortex of normal breadth. Vessels of medullary rays rather congested. Weight 11½ oz.

Pancreas.—Transposed; head in left lumbar region, tail in right hypochondrium, substance normal.

Stomach transposed. Cardiac end in right hypochondrium, touches abdominal wall for 2½ inches below margin of chest. Pylorus in hypochondrium. Body of stomach generally elongated; presents to left side of its middle a firm contraction, allowing four fingers to pass. Constriction not movable by forcible distension of stomach. Mucous membrane congested, and present small patches of ecchymosis especially at cardiac end. No ulceration. Mucous membrane over lower and back part of constriction appears rather puckered and opaque (old ulcer).

Duodenum transposed; ileum terminates in left iliac fossa. Great intestine lies altogether in left side. Cæcum in left iliac fossa. Ascending colon reaches to left lobe of liver. Transverse and descending colon and sigmoid flexure are much contracted, and present a number of twists which altogether lie more or less parallel to ascending colon, and in immediate contact with its right side. Rectum goes down middle line of pelvis. Substance of intestine natural. Pelvic organs natural.

Spine.—Bodies of tenth and eleventh dorsal vertebræ much narrowed in front, and in the foreparts of both is a thin deposit

of new osseous matter. Periosteum thickened over this and intervertebral substance.

All vessels except those of transposed viscera lie in normal position.

Vena cava on right side, arch of aorta on left.

CASE 17.—*Aneurysm of arch of aorta.—Paralysis of left recurrent laryngeal nerves.—Insanity.—Death.*

Susanna B—, æt. 40, married. Admitted January 24th, 1880. For the opportunity of observing this case, and for much valuable information concerning it, I am indebted to my friend Dr. Félix Sémon.

Family history.—Father died, æt. 77. Mother died, æt. 60. No history of hereditary syphilis. Seven children of above died from water on brain.

Previous history.—Had typhoid in France, and had subsequent blindness for one year. Nine years ago was seized by throat and pressed against wall; was almost suffocated. Three days after this she had a fit; mouth drawn to right. History shows subsequent aphasia. Had several "fits" since, and for last three years at very frequent intervals. Lost her voice entirely three years ago; came on gradually, and at same time had choking when swallowing food or liquid. Her voice subsequently returned, and also her power of swallowing. Never had any pain in right arm, but noticed veins in right arm to be swollen during time of fits. No history of syphilis. No sore throat, &c. Never any pain in upper part of chest.

On admission.—Complaining of hoarseness and loss of voice, palpitation, and temporary loss of power in right arm. Well nourished; no giddiness; face not livid. Left pupil larger; no squint. Tongue protruded straight. Uvula deviates to right. Left angle of mouth slightly lower than right. Both sides of face move well. Equal power of grasping with both hands. No loss of power of legs.

Chest.—Upper part of sternum and upper ribs very prominent. Bulging, especially in right first and second intercostal spaces, where distinct heaving pulsation, with thrill. Dulness on percussion extends 2 in. to right of sternum. No murmur over this area.

Apex of heart between seventh and eighth ribs, 3½ in. below, and 2 in. outside nipple line; impulse strong; sounds normal. Pulse 80, regular; left pulse fuller than right. No distension of veins of neck or arms. No pain in chest. Occasional attacks of palpitation.

Lungs.—Signs healthy, except in left supra-spinous fossa, where there is impaired resonance and prolonged expiration.

Voice hoarse. Cough, with muco-purulent expectoration.

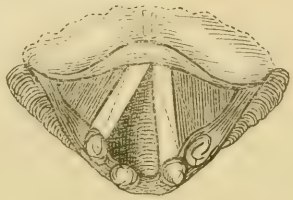
A note by Dr. Semon on the laryngoscopic appearances is as follows:

"Larynx is normally formed, but the entire left half (except the left half of the epiglottis) stands apparently somewhat higher than the right.

"There is *complete paralysis of the left recurrent nerve.*

"The left vocal cord remains (with certainty for the last nine months) immovable in the "cadaveric" position (*i. e.* midway between abduction and adduction) during respiration as well as during phonation.

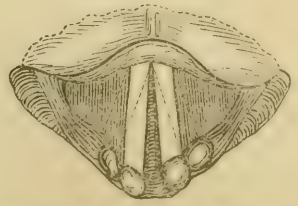
Fig. 8.



Deep inspiration.

"Fig 8.—(The right vocal cord is properly abduced; the left immovable in the cadaveric position.)

Fig. 9.

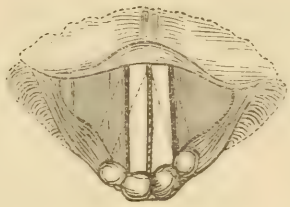


Usual position during phonation.

"Fig. 9.—(As a rule,—especially if the patient be tired in

consequence of talking or of other exertion,—the right freely movable vocal cord comes only up to the mesial line; there remains an open space between the free edges of both vocal cords; the voice is completely aphonic, only a whisper.)

Fig. 10.



Occasional position at the beginning of phonation.

"Fig 10.—(Occasionally,—especially if the patient have had rest and be *beginning* to talk,—the right vocal cord is seen to *cross* the medial line and to join the immovable left one. In such moments the right arytænoid cartilage stands slightly *behind* its diseased fellow; the *entire glottis* is seen to be slightly *oblique*, and there is a short normal sound of the voice. Soon, however, the patient is tired, and the conditions under Fig. 9 set in again.)

"During coughing and talking 'phonatory waste of air' (v. Ziemssen).

"Especially the cough is very characteristic."

Appetite good; not much loss of flesh. Belly soft. No ascites. No abnormal condition.

Left side of face colder than right.

Urine 1022, clear, no albumen.

January 27th.—Slept badly; palpitation.

28th.—Dyspnœa (foggy weather). Cough; expectoration streaked with blood.

February 2nd.—No cardiac or aneurysmal murmur. No crepitation in lungs. Left pupil still larger.

18th.—Still same; only complains of losing her memory. No bronchitis.

28th.—Giddy; otherwise improved in every respect.

March 17th.—For some days queer in manner and sayings. Has delusions, and at times frets; thinks she shall "go out of

her mind." At times gets out of bed, so found necessary to fasten her in.

18th.—No sleep all night. Easily passes from a state of happiness to one of extreme misery. Throws herself about in bed.

19th.—Died. Delirious some time before death.

Post mortem.—Body emaciated. Bulging of second and third costal cartilages, and also for about ½ in. of corresponding ribs on left side. Rigor mortis fairly marked. Surface of body natural.

Head.—Skull and membranes natural. Much increase of subarachnoid fluid.

Brain.—Posterior cornua of lateral ventricles somewhat dilated. Brain substance pale, watery.

Right pleura contains about 15 oz. pale serum.

Left pleura.—Numerous old adhesions all over, especially at apex of lung.

Pericardium contains 1½ oz. of pale serum.

Right lung.—Much congested and œdematous, especially posteriorly. Bronchi congested, otherwise natural.

Left lung.—Bands of fibrous tissue extend inwards from surface. At apex, and in upper part of lower lobe, there are four cavities about ¾ in. in diameter, and containing cheesy matter. Numerous clusters of small grey tubercle, and small patches of peri-bronchial thickening. Lung substance much congested and œdematous.

Heart.—Right side somewhat dilated and hypertrophied; left side slightly dilated and hypertrophied. All valves healthy.

Aorta.—Intra-pericardial portion uniformly dilated; the band between first and second portions presents an aneurysmal sac, projecting forwards and to right, and adherent to back of manubrium and the inner 1½ in. of first rib. The sac is 3 in. in diameter, and rather pointed to right side. It (the sac) feels very tense and firm, and presses on right side and front of bodies of third and fourth dorsal vertebræ, causing slight amount of erosion in them. It also presses on adjacent ganglia of sympathetic. The descending portion of arch is dilated and aneurysmal, the walls of the sac being thin and collapsed. The transverse portion of arch is dilated, and embedded in its

posterior surface are trachea and œsophagus, the left recurrent laryngeal nerve lying between the dilated artery and the trachea. (Contents of sac not examined, sent to museum.) The dilatation of third portion of arch was not so large as that of the bend on right side, and was covered on its front by the anterior border of left lung, which separated it from chest wall.

Abdomen.—Lower part of thorax much constricted, and all the abdominal organs are pushed down by tight-lacing.

Peritoneum natural.

Liver.—Well marked transverse groove along upper surface, with a good deal of thickening of its capsule in that groove, evidently caused by compression. Substance of gland natural.

Spleen congested, otherwise natural.

Kidneys.—Capsules non-adherent. Substance congested, otherwise normal.

Stomach and intestines natural.

Middle cervical vertebræ presents curvature to left side; the bodies of the vertebræ being rotated to that side as well. There is no disease of the bones or ligamentous structures.

Case 18.—*Aneurysm of ascending aorta; (?) aneurysm of lower part of descending thoracic aorta. Left pleuro-pneumonia.*

John W—, æt. 27; milkman and barman. Admitted January 26th, 1880. In hospital at present date, March 1st. 1880.

Family history.—Father died of phthisis. Mother alive, æt. 58. Lost eight brothers and three sisters from different causes, none of them have any bearing on present illness.

Previous history.—Diphtheria eight months ago. Never had rheumatism, gout, or syphilis. Seven years ago was a barman. Drank beer and spirits *ad lib.* Has taken only moderate quantities for last five years.

Present illness.—He dates five years back. Was carrying two heavy pails of milk up hill, and fell exhausted at the top. Was unconscious till he found himself in St. Bartholomew's Hospital. Under treatment three months, and on discharge was cautioned against running up stairs or sudden exertion. During these five years has had pain in chest and palpitation.

Has not had pain down arm nor dysphagia. No difference noticed in voice or sight. Two months ago felt very giddy. Tearing pain in cardiac region on deep inspiration. Shortness of breath got worse, till two weeks ago he had to give up work.

On admission.—Fairly nourished; pale. Complains of palpitation. Pain in cardiac region.

Chest.—Much bulging over cardiac region. General pulsation visible over neck and chest, most marked over cardiac area, first and second right spaces, and root of neck. Deficient expansion of neck on right side. Episternal notch filled up.

Heart.—Apex between fifth and sixth ribs, 1 inch outside nipple. Dulness reaches to mid-sternum, and upwards to lower border of third rib. Impulse strong, heaving. Pulsation also in first and second right spaces, with slight thrill. Much heaving pulsation and marked thrill in episternal notch. Over right half of manubrium some dulness on percussion. In third right interspace is heard a loud double murmur, transmitted to top of sternum, and always louder on right side, but also heard in corresponding left intercostal spaces. The diastolic murmur can be heard down to lower end of sternum, and finally at apex. Apparently no distinct apex murmur.

Pulse 70, regular, water-hammer; equal on both sides. No distension of veins of face or arms. No swelling of feet. Slight cough and some expectoration. Breath short.

Lungs.—Apparently normal.

Abdomen the same.

January 28th.—Sleeps well.

February 8th.—Some throbbing and pain in both loins, with some tenderness. Occasional difficulty in micturition. Empties bladder.

9th.—Pain in region of bladder; not down leg. No vomiting; no shivering.

11th.—Much pain. Vomited in night. No shivering. Much tenderness over erectores spinæ, and on each side over the fleshy part of belly muscles; pain increased by movement. Lungs, no dulness; vocal resonance increased in centre of left back and expiration prolonged; no moist sounds. Bladder not distended. Some tympanites of abdomen.

13th.—Physical signs of consolidation of left base. Face rather blue. No rusty sputa.

16th.—Signs of consolidation of left base continue, with now whispering pectriloquy and occasional moist sounds.

19th.—Less pain in back. No cough or sputum. Breathing less tubular. Some crepitation at lower angle of scapula.

21st.—No pain. No abnormal sign at base. Discharged.

Case 19.—*Adherent pericardium and left pleura.—Aortic and mitral disease.*

George W—, æt. 35; labourer. Admitted December 3rd, 1879. Died December 27th, 1879.

Family history good. No history of gout, rheumatism, or syphilis.

Previous history.—Had rheumatic fever when sixteen years old. During following winter suffered from pains in back, but no palpitation, shortness of breath, or swelling of legs. Chancre six years ago, with swelling in one groin; no secondary symptoms. Has drunk freely.

Present illness began two years ago with pain in chest, referred to lower part of sternum; pain like a heavy weight, worse after hearty meal, sometimes absent for days. Had giddiness and headache at times. Lost flesh during last two years. Four weeks ago cough worse, and three weeks ago noticed swelling of legs and of belly. Cough gradually getting worse, accompanied by "white" expectoration. No hæmoptysis till admission. No dysphagia.

On admission.—Fairly nourished. Face somewhat œdematous, especially left side. Feet and legs somewhat œdematous. Complains of pain in centre of sternum and lower part of back; pain of an aching character, like a weight in chest, and is not gnawing, or ever accompanied by exacerbations of sharp pain, or by pain down arms. Complains also of constant cough, with muco-purulent expectoration, palpitation in chest, swelling of feet, and shortness of breath on slightest exertion.

("Both supra-clavicular triangles filled up, the left, where there is strong pulsation, projecting above level of clavicle, so that the projection of bone is not seen."—Dr. Ord.)

Chest.—General pulsation evident over left side of chest. Pulsation below both clavicles. Left side of chest more pro-

minent than right, especially for about 3″ below clavicle. Episternal notch almost obliterated. Pulsation equal on both sides of neck (?). Apex of heart between sixth and seventh ribs, 2″ below, 3″ outside nipple. Transverse dulness from apex to half an inch to left side of mid-sternum; vertical dulness to third rib. Double murmur at apex, both sounds being heard further round into axilla. At base, on both sides of sternum, a systolic murmur propagated up to root of neck, and also a diastolic murmur carried down along left edge of sternum, and from its lower end towards apex beat. Over an area of $2\frac{1}{2}$ square inches, and occupying left half of manubrium and inner end of first intercostal space, there is dulness on percussion; and over this area a loud systolic murmur is heard, and also a faint diastolic murmur. The sternum is somewhat bulged at this point, but no marked pulsation.

Arteries everywhere hard and degenerated. Pulse 68, regular, collapsing, equal on both sides. No distension of veins of arms. "Thrill felt over heart over third and fourth ribs." (Dr. Ord.)

Lungs.—Anteriorly resonant; breathing vesicular, harsh over right lung. Expiration somewhat prolonged, and accompanied by rhonchus and crepitation. Occasional crepitation over left lung; breathing vesicular. Posteriorly, some impaired resonance over right back, especially along right side of spine. Breathing equally feeble on both sides, and over both lungs crepitation and rhonchus, perhaps most on right side. Breathing everywhere vesicular. Vocal resonance equal on the two sides. No tubular breathing. Systolic murmur heard equally on both sides of spine (?). Considerable cough with copious muco-purulent expectoration, which is faintly blood-stained. Voice not hoarse.

Tongue moist, clean; no vomiting; no dysphagia; bowels regular. Abdomen soft. Liver and spleen normal. Urine 1026, copious lithates, acid, trace of albumen, no casts. Sleeps badly, some headache. Left pupil neither abnormally large nor small.

December 6th.—Expectoration muco-purulent, viscid, tinged with blood; much tympanitic distension. Bowels not open.

8th.—Slept badly, breath short; much cough and expectoration.

10th.—Less cough; still rusty expectoration. No pain in chest.

11th.—Slept better. No pain in back; no dysphagia; no change in physical signs. Urine 1034, trace of albumen.

15th.—Breathing everywhere vesicular. Much more crepitation and rhonchus over left back than right. Vocal resonance increased over right apex posteriorly. No pain in back.

17th.—Diastolic murmur at apex more blowing, and heard more plainly in axilla. Pain in belly.

22nd.—Still pain in belly. Bowels slightly confined. Tongue clean. Dyspnœa at times. Lips livid. Œdema of legs. Pulse full, bounding, 76; temp. 97·2°. Right base, slightly impaired resonance on percussion, with increased vocal resonance. Wheezing over both lungs.

27th.—Died 7.30 p.m. No notes subsequent to 22nd.

Post-mortem examination.—Pericardium 7 inches in mid-sternum and 7 inches transversely in line of nipple. A number of old adhesions, about $\frac{3}{4}$ in. long, bind pericardium at apex to parietal pleura lying on sixth and seventh ribs, about $1\frac{1}{2}$ in. below and outside nipple. Pericardium adherent all over by old adhesions.

Heart 2 lbs. $1\frac{1}{2}$ oz., generally enlarged, especially on left side. Right side hypertrophied, dilated, and empty; right ventricle average thickness $\frac{1}{2}$ in.; valves healthy. Left side much hypertrophied and dilated; average thickness of ventricle 1 in.; cavity empty. Mitral valve: much fibrous thickening of edges; chordæ tendinæ short and thick. Aortic valve: the right anterior and posterior cusps are firmly adherent by their adjacent margins. The lanceolated portion, and part of the body of the right anterior cusp, is separated from the rest of the flap, lying loosely, and attached to the left corner of the cusp by an attachment $\frac{1}{8}$ in. broad. The edge of this loose piece is very thin and irregular; its surface covered by recently coagulated blood. Much fibrinous deposit through whole aortic valves.

Aorta.—Patch of ulceration in first part above lacerated valve the size of a sixpence, extending into middle coat. A few patches of atheroma scattered throughout aortic arch.

ON A

CASE OF EXTROPHY OF THE BLADDER

IN WHICH

GRANULATING FLAPS WERE EMPLOYED TO COVER THE EXPOSED VESICAL SURFACE.

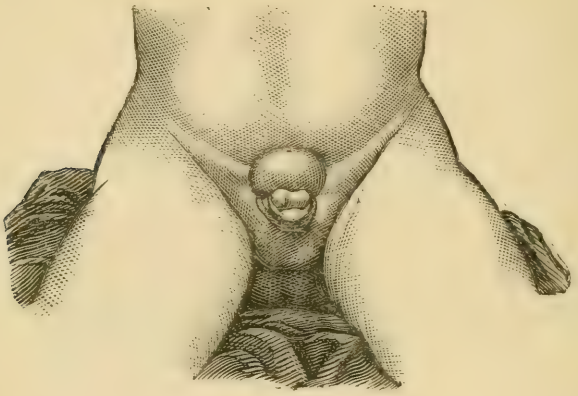
By WILLAM MAC CORMAC.

The method employed in the following case to relieve a most distressing deformity was so successful that I consider a short account of the steps of the operation performed may prove interesting.

When the boy, G. R—, first came under my care at the age of fifteen years he had already been submitted to an operation by Dr. Barton, of Dublin, who had united the two halves of the epispadic glans penis with the hope that a cup-shaped hollow would thus be formed, into which the urine might be received as it trickled from the ureters. Very little advantage, however, was derived, and I determined to cover in the exposed mucous surface of the bladder by means of flaps taken from the abdominal surface after the method devised by Professor Thiersch, of Leipzig, who has now performed six or more operations of this kind with results as complete as are in the nature of the circumstances practicable. As regards the actual malformation, my patient presented the ordinary fea-

tures, as may be seen in the accompanying drawing taken from a photograph (Fig. 1.)

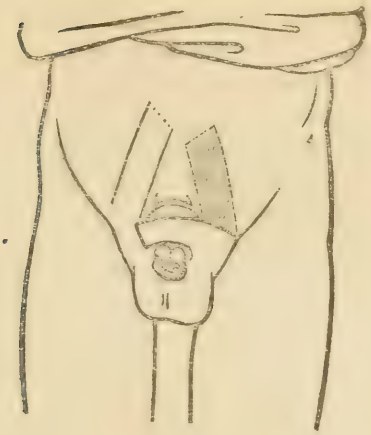
Fig. 1.



The testicles had descended into the scrotum, and were normal, but the corpora cavernosa of the penis were not developed, the glans penis, united by the previously described operation, was sessile, while beneath it hung a fold of tissue representing the ill-formed foreskin. The recti muscles were separated for two thirds of the way up, leaving the central line of the abdomen very weak. No actual gap could be felt at the pubic arch, but the bones were separated to some extent although the interval was filled by a strong fibrous connection. There was, as is usually the case, no umbilicus visible. No hernial protrusion existed on either side. Another peculiarity was the absence of perineum. The boy was born with an imperforate anus, which had been operated upon soon after birth. But a strictured condition of the orifice remained, which resulted in the lower end of the bowel becoming enormously dilated from accumulation of fæces which were only in part got rid of, from time to time, through the contracted anus, and a fistulous opening which had been formed about an inch distant from it. I was able to give considerable relief, and improve the boy's state by laying open the fistula into the bowel.

With the object of covering the exposed vesical surface I made the incisions indicated on the drawing (Fig. 2) so that two flaps

Fig. 2.



of skin and subcutaneous cellular tissue were raised from the subjacent aponeurosis in a bridge-like fashion, leaving each attached above and below for the purpose of blood supply. One flap only should be made at a time, the second being mapped out and dissected up in a similar fashion when the first has thoroughly healed in its new position on the completion of the second step of the operation. In the course of three weeks the flaps become thick and vascular, and the under surface granulates. This must be kept separated from the granulating surface on the abdominal wall by strips of oiled lint interposed between.

In slighter cases one flap may suffice, but usually two are needed. Each one should be cut as broad as the entire vertical depth of the exposed surface to be covered, and one third longer than the total width of the exposed mucous surface, in order to make a sufficient allowance for contraction. When the allotted interval has elapsed the flap is divided obliquely at its upper extremity, laid transversely across the exposed mucous membrane, and attached by a sufficient number of sutures at the opposite side to a raw surface purposely prepared to receive it. This is done first with the flap on one side, and then, after a sufficient interval, with that on the other.

In my patient I used the flap from the left side to cover the lower half, and made it in the following manner, the

details mentioned being of importance:—The internal incision should follow the inner margin of the displaced rectus muscle and run close to the edge of the exposed bladder, curving round its lower margin, to the root of the penis, as indicated in the diagram (Fig. 2). The external incision runs parallel to the first at the distance already mentioned. Great care is required in raising up the inner margins of the flaps lest the peritoneal cavity be opened, and any margin of skin remaining should be carefully removed. Care must also be taken not to open into the inguinal canal which is often enlarged, and usually contains a hernial protrusion, or to expose the testes.

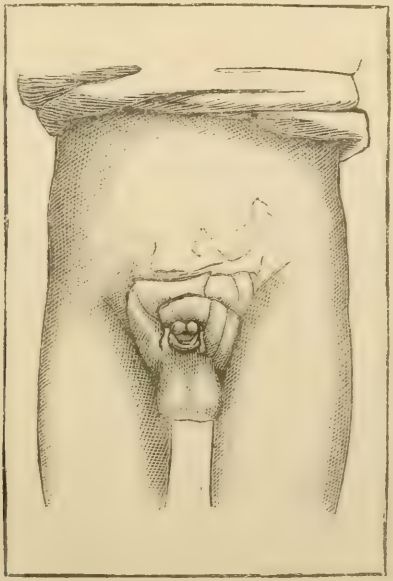
The flap so raised contains everything from the skin to the aponeurosis, and it is allowed to remain attached at each extremity by a broad bridge of skin. There is thus no risk to its vitality, and by the time the second stage of the operation is reached it has doubled or trebled in thickness, so that after three weeks the flap will have become so thick and vascular, that there is no tendency to slough whatever after its partial separation. It may now be safely severed at its upper extremity obliquely from within upwards and outwards, as indicated by the dotted line, and then laid transversely across the lower part of the exposed bladder, and sutured to the opposite margin, after paring the edges of contact. The lower two thirds of the vesical mucous membrane were now covered in in this way. This flap I also united at once to the glans penis, whose upper margin was split open for the purpose of receiving it; but in some cases it is better to make a roof for the urethra by transposing the foreskin from below as a species of bridge across the urethral groove, and uniting the upper margin of this to the lower border of the flap at a later period, or a urethra may be formed by a special operation for the purpose.

As soon as any fistulæ which may remain are closed the next stage of the operation may be proceeded with, which consists in utilising the flap from the opposite side to close in the upper part of the bladder. This is made in a similar way to the first, only that the inner extremity terminates at the upper point of attachment of the first flap, as shown in the diagram; and at the same time the skin should be raised in the median line carefully for a distance of three quarters of an inch along the upper margin of the bladder.

After a similar interval of three weeks has elapsed this second flap is cut obliquely at its upper end and turned across the upper part of the bladder. The adjacent margins of the two flaps are then pared and united together by sutures, while the upper margin, also pared, is united to the pared edge of the central small flap of skin, which has become thick and vascular in the interval. In this way the whole of the bladder surface will be covered in and protected.

Healing took place after this second operation as completely as after the first, the margins united together well, except at one angle, where a stitch got buried and forgotten, but the fistula remaining was subsequently closed by the application of the actual cautery, and all the urine flowed readily through a tube introduced through the glans penis, and now at the end of twelve months the condition is that represented in the drawing (Fig. 3), sound healing having everywhere taken place.

Fig. 3.



Professor Thiersch allows a year as the period needed for the completion of the various steps of his method of operating. In the case just recited about that time was consumed.

By means of a pad pressing upon the meatus a certain quantity of urine can be retained, and by degrees the flaps of skin will yield somewhat so as even to permit a certain quantity of urine to accumulate.

An operation of this kind appears to me obviously preferable to any of those where the skin surface is turned towards the bladder; no known means completely prevents the hair-growth, and on each hair phosphatic deposits take place.

That healthy urine does not appear to interfere injuriously with the healing process, was very evident after most of the operations performed on this boy, the edges united by first intention as easily as in a wound of the face, and we see the same thing after operations for vesico-vaginal fistula. Urine has no prejudicial influence whatever on granulating surfaces.

The employment of granulating flaps is of great importance in various plastic operations, and in none does it seem more likely to prove useful than for remedying such a defect as extroversion of the bladder.

A FATAL CASE

OF

POISONING BY SANTONIN,

WITH SOME

REMARKS UPON ITS CHEMICAL PROPERTIES.

By W. J. KILNER, M.B.

The following case of poisoning by santonin is interesting on account of the rapidity with which death took place. A dose of six grains was given to the mother of a child of four and a half years of age, by an unqualified man. The powder was handed on to a friend, who gave it to her daughter, a child of five years. The medicine was administered at a quarter to eleven at night upon an empty stomach, but as the child complained of bitterness, her mother gave her a mouthful of beer. No sooner had the child laid down than she complained of pain in the epigastrium, whereupon her mother took her upon her lap. In a minute or two convulsions came on, and insensibility followed almost directly. The convulsive movements were continuous, not intermittent, and the jactitations not severe, although near the end there was sight opisthotonos. There was no purging or vomiting. Death took place about twenty minutes past eleven, or thirty-five minutes after the powder was swallowed. As no medical man arrived until after death, the above description was from the mother and a

friend. A post-mortem examination was made by Dr. E. F. Pocock and myself. The child was well nourished and had no external marks upon her body. Her countenance was placid, and her pupils normal, not dilated. Most of the organs presented a perfectly healthy appearance. The stomach was inflamed in four patches on the greater curvature and near the pyloric end. The duodenum was inflamed throughout more intensely than any part of the stomach, and, strange to say, the inflammation terminated abruptly with the duodenum. No other parts of the body could be said to be affected, unless it were the left kidney, which was darker in appearance than the right, but this seemed to be only post-mortem. The right heart was contracted, and contained no blood either in the auricle or ventricle, while the left contained about one ounce of black fluid blood. The brain did not show the slightest sign of congestion, and looked perfectly healthy.

From the history, I suspected that strychnia had been administered for santonin, but in a preliminary examination none could be discovered, neither could perchloride of mercury or oxalic acid. The contents of the stomach were, some remains of cabbage, orange pulp, and two pips, with a little pultaceous matter, and a very small quantity of animal food. Some scrapings of the inflamed portions of the duodenum were placed under the microscope, and in a few instances there were table-shaped crystals similar to the usual form of santonin. It is unnecessary to relate in detail the analysis, which showed conclusively that santonin was the poison taken.

As the books usually possessed by medical men give only a very meagre description, and are also often at variance one with another, I repeated many of the experiments, and also have added some others which have not been previously published.

Santonin ($C_{15}H_{18}O_3$), the active principle of the *Artemesia santonica*, when obtained in the usual manner, consists of small white tabular crystals. These crystals turn yellow when they are exposed to daylight. With this change, I find that it becomes less active, not being so quickly soluble in the different menstrua, and in taking a longer time for the completion of the colours tests, which will be fully described later on.

I took two equal portions of santonin, one a white sample, and the other yellow from exposure to light, and placed them upon a microscopic slide and carefully heated them over a Bunsen's burner. They both melted at the same time, but after several times being heated and allowed to cool, the yellow melted at a lower temperature and also crystallised as cooling proceeded later than the white. After two or three heatings, the colour of the white and the yellow corresponded, each having a shade of blue. To find out whether the melting point had changed, some fresh white crystals were placed on the slide beside the others, and these melted sooner than the other two. Thus, it is proved that the melting point is raised after several reheatings and coolings. Another circumstance worth noticing is that when santonin has been fused and allowed to crystallise spontaneously, some time elapses before crystallisation is completed, but after four or five times being melted this process takes place rapidly, and, again, after several more remeltings, crystallisation is still more difficult than at first.

From these differences of properties does it not appear probable that the medicinal properties of the two varieties may not be the same, the white being more active than the yellow?

Santonin at a slightly higher temperature than the melting point sublimes. The melted liquid and the sublimation act in a similar manner, viz. they remain clear, and as they cool become solid, but subsequently they turn opaque from crystallisation. When water is added to the sublimate, crystals in the form of tabular prisms immediately make their appearance. If the melted mass, before it becomes solid, be heated with water, large lichen-shaped crystals are formed instantaneously. Should, however, the mass be clear but solid, if the water covers it then the surface presents nearly the same crystals, but they are evidently superficial. To continue, water was placed near the melted mass and brought to touch it by merely a point. At this point of contact the lichen-shaped crystals alone were developed, but the mass, previously transparent, gradually became opaque to the naked eye, and when placed under the microscope with a low power, numerous streaks, not arranged in any regular manner, could be distinctly seen. Under a higher power (quarter-inch) the whole mass was

observed splitting up into tabular prisms as far as the water was able to penetrate between the already formed crystals, or to cover the surface. These tablets were as nearly the same size as those formed by the addition of water to the sublimate.

Santonin dissolves in concentrated sulphuric acid without decomposition for a short time, but if heat be applied the fluid turns an orange brown (the exact colour of the strong solution of perchloride of iron), and almost immediately becomes black from charring. When cold sulphuric acid is the menstruum, the red colour appears slowly but eventually there is a deposit of a resinous substance.

I made a solution of santonin in strong sulphuric acid, and to a portion added some distilled water, when a milky white precipitate was immediately deposited. This deposit when placed under the microscope (one-inch objective) was found to consist of innumerable small flat prisms. Another portion of the solution was heated in the same way after it had stood an hour, with the same result to the naked eye, but under the microscope the crystals were much smaller. After twenty-four hours a third portion was similarly treated, and this time there was the same white deposit, and the supernatant fluid was tinged with red. When the precipitate was examined under the microscope the crystals were invisible with the inch objective, but with the quarter-inch they were the same shape as before, and in addition there was a small deposit of some amorphous substance. After seventy-two hours another portion of the same solution was examined in the same way, when the precipitate was of a reddish-brown colour and wholly amorphous, and the fluid portion darker in colour.

In the only account[1] I could find where any mention is made of a solution of santonin when treated successively with sulphuric acid and bichromate of potassium for a colour test, it was said "that at the most a green oxide of chromium is formed." This statement is perfectly true when a dry crystal of the bichromate is used, but if the crystal be moistened with water, or, still better, if a concentrated solution of the bichromate be added, the following distinctive reaction takes place:—As the two fluids mingle the edge of the bichromate becomes a brilliant crimson, which almost immediately turns into a

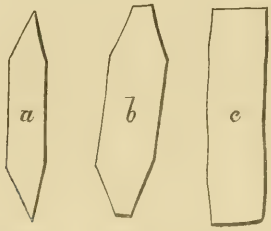
[1] Taylor, 'On Poisons.'

brown. The depth of the brown colour depends upon the strength of the solution of santonin—the more santonin the darker the shade. This brown colour, after passing through a series of transitional colours, becomes a green, which in its turn becomes bluish, and eventually a pale pure blue. The blue tinge lasts for days, but the colour gradually becomes paler. The time this test takes in completing its rotation of colours is very variable and depends upon the strength of the santonin solution; the stronger the solution the longer the time; also upon the amount of exposure to light the santonin has undergone before being dissolved. A slight amount of heat will cause the changes to proceed rapidly. The blue colour is the distinctive part of the reaction, as the previous parts are produced by salicylic acid under the same circumstances, but with the latter the colour remains a dirty green. I have repeated this experiment nearly a hundred times and always with the same result. The delicacy of the test is such that the reaction is well marked if a single drop of a solution of one grain of santonin to a gallon of water be used, but if only half the above strength it is very difficult, although possible, to obtain a satisfactory result.

With santonin which has been dissolved in strong sulphuric acid for forty-eight hours, and the solution turned red, the reaction with the bichromate solution is very similar, but the colours are not quite so bright; also after a short time there is a dark chocolate-coloured deposit which soon changes to a lighter shade. This deposit under the microscope is perfectly amorphous.

I tried to observe what changes took place in this test when viewed under the microscope, and the following description is as near as I could make out:—When the two solutions touched each other at the point of contact the crimson line looked almost black, the colour being caused by dark crystals shaped like oak leaves, but so evanescent that only under the most favorable circumstances can their shape be made out; generally their appearance is granular from being partly dissolved. It is owing to these coloured crystals, which dissolve as soon as formed, that the solution turns brown and then passes through the different shades. Just behind this layer, as the water of the bichromate solution enters the santonin

solution, there are visible innumerable flat prismatical crystals floating in the fluid, which by this time has turned greenish brown or green, while the water absorbed by the strong acid, causing the bichromate solution to become supersaturated, some of the salt crystallises at the edge. In a few minutes many of the santonin crystals as well as the black ones are redissolved, and a new compound is formed, crystallising in quite a different shape and at least a thousand times larger. The form of these crystals are prisms with very tapering ends,



"a." The ends of these soon become blunted, "b," and afterwards they are transformed into perfect prisms, "c." There were other shaped crystals, but the number was so limited that they are hardly worth considering. When the crystals have arrived at this stage, the solution surrounding them has arrived at its blue colour. From three to six hours afterwards these crystals seemed to be splitting up, as the edges were no longer sharp, and they were streaked and indented. A few hours later on, only single prisms or bundles of prisms, much broader than before in proportion to their length, were to be seen. During the process in another part of the field, just at the point of contact of the two fluids, there were small crystals of bichromate of potassium, and the still part of the fluid was a beautiful rose colour, but the area was not sufficiently large to be visible to the naked eye.[1] With the stream an infinite number of small crystals were swept into the solution of the bichromate, which gradually became smaller until they vanished. In this part subsequently large white acicular crystals were formed.

[1] N.B. If a very dilute solution, say ½ grain to the pint, be used often, the fluid outside the above-mentioned coloured portions is tinged a rose colour.

The above test will detect santonin in urine with the greatest ease.

When a solution of santonin in sulphuric acid is heated with a solution of permanganate of potassium the liquid is bleached, and if at this stage crystallisation is permitted to take place, large acicular crystals are formed. With a larger quantity of the solution of the permanganate a peculiar rose colour, deepening according to the quantity, is produced, which after a time throws down a yellowish-brown precipitate.

Concentrated nitric acid dissolves santonin more largely hot than cold. When boiled, the solution turns a greenish yellow. When the solution is diluted suddenly with water an amorphous deposit is precipitated. This precipitate soon becomes crystalline, mostly in tufts, but the shape varies considerably. The tufts and the isolated crystals are mostly tabular, and differ chiefly at their ends, these being very irregular. Should the amorphous deposit wholly dissolve before crystallising, then the result is regular crystals, but should, however, one of these crystals come in contact at the ends with some of the amorphous deposit, then the two may unite, and for a short time they can be distinguished; eventually, however, they become homogeneous. This seems to be the whole cause of the irregularity of the crystals. In no instance could I discover the amorphous deposit adhering to and amalgamating with the sides of the crystals.

When ammonia is added to a solution of santonin in nitric acid, an orange-red colour is produced, which is not precipitated by acetate of lead. Hydrate of potassium to the acid solution does not produce any reaction. The nitric acid solution of santonin turns a concentrated solution of bichromate of potassium a blue colour, the intermediate hues being a deep orange and green. Upon a china slab the orange colour is not well marked. This reaction in a test-tube is easily obtained, but there is one curious point, viz. that unless the solution has been boiled the reaction is delayed for a long time. None of the other reagents used gave any results with the nitric acid solution.

Strong hydrochloric acid dissolves santonin, and when warmed there is a clear solution, which gradually becomes pink, but afterwards, owing to the escape of the gas a white precipi-

tate is thrown down, while the supernatant fluid is either pink or white according to the duration of the boiling. This deposit is amorphous and globular, but in two or three days it becomes crystalline. Should, however, the amount of santonin be too great to be held in solution when the acid becomes cold the santonin is thrown down in small prisms.

If to a solution of santonin successive additions of permanganate of potassium be added, first bleaching, then a dirty white precipitate, and lastly, a thick brown deposit is thrown down. Bichromate of potassium gives no reaction. Of the three acids, sulphuric is the best solvent of santonin and the only one which dissolves it easily when cold; hydrochloric acid is the worst.

Alcohol dissolves santonin in a larger quantity when hot than cold. A solution of santonin was made in alcohol and tested with many reagents, but with no result except the following.

When a small quantity of a solution of permanganate of potassium was added to the alcoholic solution, a dark orange colour was the result, and afterwards a precipitate, the colour of "burnt Roman ochre," was thrown down.

The alcoholic solution gives no precipitate with gallic acid, but with tannic a white one, which is dissolved by hydrate of potassium, forming a solution, having the colour of sherry.

When santonin is suspended in water and a small quantity of permanganate of potassium is added and heat applied, the solution bleaches. If continuous supplies of the permanganate be added later on a red-brown precipitate is formed, while the solution remains white, but during this time the santonin gradually dissolves and is used up. At last a point is reached when there is no further deposit or effect upon the permanganate. This reaction might be made a quantitative test.

Besides the menstrua already mentioned, there are others which can dissolve santonin, viz. water very sparingly when cold, more when hot; chloroform, ether, nitrite of amyl, are good solvents; while oil of turpentine, the essential oils, strong acetic acid, bisulphide of carbon, and the alkalies, are not so good.

The urine of a person who has taken a dose of santonin is a greenish yellow, which turns crimson upon the addition of

one of the alkalies or alkaline earths. The colour is intensified by heat. Of these reagents potash is the most delicate. If only a small quantity of santonin be present, the colour is best detected by looking obliquely down at the solution. Urine containing santonin gives very similar reactions with acids, as if it contained bile. Nitric acid produces a transient purple, turning red. Sulphuric acid a brownish purple, changing to a brown. The colour test already mentioned seems to be the most delicate. If santonin be dissolved in urine, the same reactions take place, with the exception that the urine does not always acquire the greenish tinge.

Santonate of potassium is obtained by digesting for some time santonin in alcohol with carbonate of potassium until the solution becomes colourless, and then evaporating to dryness, afterwards abstracting the santonate with absolute alcohol and allowing the filtrate to crystallise. The crystals are fine silky needles. A slight difference of procedure gives a very distinctive test for santonin, but one rather difficult to obtain, as it only takes place at one particular stage of the preparation of the santonate. If during the preparation a few drops of water be added and an insufficient quantity of alcohol be used, so that the spirit may be evaporated before the liquid is completely bleached, there remains a pale crimson salt. If to this a drop of a strong solution of perchloride of iron be added, a blood-red fluid is obtained.

A SECOND COMMUNICATION

ON

FOOL'S PARSLEY (*ÆTHUSA CYNAPIUM*).

By JOHN HARLEY, M.D.

It is often said that medicine can never become an exact science. It would be much nearer the truth to say, that such an education as the ordinary medical man receives, or such knowledge as he commonly acquires, can never lead him to be scientifically exact. His ordinary acquirements are too often but a cloak to his ignorance, and it follows that when he is called upon for scientific information he is apt to impart the crudest errors; the common practice ensures impunity, assertion takes the place of facts, and a didactic assurance carries more enforcement than knowledge.

These reflections seem harsh, but who can deny their truth? They are suggested on the present occasion by referring to my previous paper, in which I have given an analysis of all the published cases of reputed poisoning by fool's parsley. Here we witness, on the one hand, the animus of an ancient prejudice, and, on the other, a deplorable ignorance of the first object of these observations—the *Æthusa cynapium* itself. From this review, and from my own study of the plant, I was led to the unavoidable conclusion that it was perfectly harmless. Shall we say that the 300 years of horror, loathing,

and hate cast upon this now innocent little plant have at last purged it of its vices; or must we dejectedly confess that so much emotion has been so long and so ignorantly wasted? I think we are bound to make the confession. What a lesson to those who, with as much reason, erect their prejudices into altars whereat to sacrifice the best feelings of their nature!

The observations in my previous paper had reference to the juice prepared from Essex-grown plants of the year 1867, and to tinctures derived from fruits, both green and dry, grown in different localities in Sussex and Kent, and in three different seasons.

A notion prevails, I believe, to some extent, that locality and season have a great influence in developing or repressing the qualities of the poisonous umbelliferous plants, but I know of no fact which bears out that idea. It is said, for example, that hemlock is eaten as a salad in Russia. Well even in England, where the poisonous properties of hemlock are fully developed, the horse or the ox may browse upon the juicy plant to the extent of at least a pound of the young leaves without showing any of its physiological effects, and even man may eat an ounce of the herb without experiencing any appreciable degree of coneism. But we have yet to learn that hemlock is used in any part of the world as a salad, for there are the "greater" and the "lesser" hemlocks, and a reference to medical literature will show how easy it is to confuse them and how often this has been done.[1]

The lesser hemlock (*Æthusa cynapium*) might well be eaten as a salad in Russia or any other part of the world. That it has been so used seems to me very probable. Fool's parsley is a domestic plant. Like the house sparrow, it everywhere invades our homesteads, and it is rarely or never found in the wild uninhabited parts of the country. Nay more, it seems to have the same association with the Roman stations in this country as the *Smyrnium olusatrum* has with the Norman castles of a later age. Verulam, Richborough, and Thanet are notable instances, St. Albans especially, for there is no weed more common there than fool's parsley. I will leave the philologist to determine whether the prefix "fool's" is to be taken as indicative of a thing to be avoided, or a thing to be

[1] See my previous paper, p. 69, vol. iv, 'St. Thomas's Hosp. Rep.'

loved, as "my pretty fool," and will pass on to give further evidence of the harmlessness of the *Æthusa cynapium* for the benefit of those who may be still in doubt, or who are likely to be misled by those who have written more recently on the subject than myself. My previous paper seems very little known. Our eminent medical jurist, the late Dr. Taylor, indeed, has expressed himself as satisfied with the evidence which I have adduced; but when I turn to other writers on toxicology I find them transcribing the old story, and promulgating errors which I thought I had fully exposed seven years ago.

It is thus with von Boek in Ziemssen's 'Cyclopædia of Medicine,' who, unwittingly perhaps, adds to rather than diminishes from the error in quoting the following:—"In 1869 five members of one family became ill from eating a veal pie which had been flavoured with fool's parsley instead of ordinary parsley (Chèvallier)."[1]

"*Flavoured,*" merely flavoured! Oh, pernicious plant, worse than the worst, even aconite itself!

A foreigner may be excused for his ignorance of a few facts in English literature, but the same indulgence can scarcely be accorded to his English translator.[2] For the sake of contrast, the reader will perhaps allow me to transcribe the summary, almost entire, of the properties of fool's parsley as given in this most recent work on toxicology. The authors say "the leaves of fool's parsley have been eaten by mistake for common parsley, and the roots for parsneps. The plant may be known from true parsley by its producing, when rubbed, a nauseous odour. It is a narcotico-irritant poison. It is a poison to animals. Six ounces of the juice introduced into the stomach of a dog and secured by a ligature killed it in one hour. In the human subject it has caused death in one hour. Nausea, vomiting, stupor and insensibility, dysphagia, muscular tremblings, dilated pupils, and lockjaw have been observed." Then follow six illustrative cases, the evidence in which, amongst others, I have criticised and shown to be fallacious in my previous paper.

Botanists trouble themselves as little with the facts as do

[1] Ziemssen, vol. xvii, p. 829.

[2] Woodman and Tidy, 'Forensic Medicine and Toxicology,' London, 1877.

the toxicologists, and so we find the latest writers on medicinal plants[1] reiterating the stereotyped errors—amongst others this —"The leaves of fool's parsley when bruised emit a peculiar, disagreeable odour, which is altogether different from that of parsley." The authors previously quoted, in strict obedience to precedent, make the same statement, and I dare to assume that neither of these four men ever bruised fool's parsley themselves in order to appreciate its qualities. If they had done so they would have found that the odour of the bruised leaves is not unpleasant, inasmuch as it is faint, and resembles that of parsley itself. Again, in reference to Orfila's stupid experiments, can a man in his senses infer anything of the action of a medicine by forcing it into the stomach and then tying a string tightly round the gullet and its nerves? The only way to bring people who make such inferences to a sense of the realities of the situation would be to put them in it. In such a case, and apart altogether from the reputed poison, how many would survive the hour? It is surely time to expunge such glaring absurdities from scientific literature. Here my criticisms end, and I will now adduce my facts.

1. *Juice of the plant obtained before flowering.*—June 4th, 1874, between 5 and 6 p.m., I collected a few plants of *Æthusa cynapium* growing in an old-established walled garden, shaded by trees, within a stone's throw of St. Albans' Abbey, and sloping to the south. The day had been dry and hot. The plants varied from four inches to a foot high, were bushy and robust, and most of them just about throwing up a flowering stem. At night the roots were washed, and the plants placed in a deep vessel containing quarter of an inch of water. They were quite fresh in the morning, and between 9 and 10 a.m., that is, fifteen hours after they were gathered, they were crushed and pressed. To ensure success the roots were crushed separately, they evolved more of the pleasant carroty flavour than the herb. The herb proved to be very succulent, as Mr. Walter Hemingway's statement will show:

[1] Bentley and Trimen, vol. ii, p. 124, 1880.

	lbs.	oz.
Gross weight of herb . . .	1	15½
Weight of expressed juice . .	1	7¼
„ „ marc	0	7
	1	14¼
Loss	0	1¼
	1	15½

The expressed juice measured 23 oz., and it was mixed with 7 oz. 6 drachms of rectified spirit. The turbid mixture was not filtered. After subsidence of the solid matter the juice was brightly clear, of the colour of pale sherry, and a pleasant taste. Five hundred grain measures evaporated to dryness on a water bath yielded 20·3 gr. of varnish-like, orange-brown extract.

2. *Juice obtained from the plants in green fruit.*—The remainder of the plants in my friend's (Mr. Edward Beal's) garden were allowed to grow undisturbed, and they finally attained a great size. On the 25th of July I pulled one of the finest of these plants (about three feet high) out of the ground, and during the afternoon chewed the washed root. It had a sweet taste, with a pleasant flavour resembling both carrot and parsley; it was tough and woody, and harder than pine wood to chew. I experienced no effects.

In the evening of the 7th August the rest of the plants were dug up and sent to me entire. I received and examined them the same night. They were very finely grown, and heavy with fully-formed, green, sweet fruit. Most of the plants were over two and a half feet high. Many had a dozen umbels. One plant was four and a half feet high, had eleven primary branches, and 173 umbels, and the stem at the base was half an inch in diameter.

The plants were crushed and subjected to strong pressure early next morning. The following is Mr. Walter Hemingway's statement:

	lbs.	oz.	
Weight of Æthusa cynapium .	12	10	
„ „ juice expressed . .	5		1=78 fluid ounces.
	7	9	
„ „ marc	6	15	
Loss	0	10	
	7	9	

The 78 fluid ounces of expressed juice were mixed with one third of its bulk (19 fluid ounces) of rectified spirit, making a total of 97 fluid ounces. The turbid mixture was not filtered. It was a very dark brownish-green, and after the subsidence of the solid matter the bright supernatant fluid was of a rich reddish-brown colour, darker than taraxacum juice, which, though free from bitterness, it resembled in taste. Five hundred grain measures, evaporated to dryness on a water bath, yielded 53 grains of dark, rather charred extract, for my water bath had become dry.

3. *Observations on the juices of the immature and mature plants.*—Being thus provided with carefully prepared juices of the young plant in its most succulent condition, and of the same generation of plants in their fully matured condition, I exhausted my supply upon four patients, one a little girl six years old, who took them in doses ranging from 2 drachms to 2 ounces; myself, who took them in quantities ranging from 2 to 4 fluid ounces; and two other adults, who were the subjects of spasmodic torticollis. These two took one or other of the juices in doses ranging from 1 to 8 fluid ounces. Effects were carefully looked for, but there were absolutely none in either case after any one of the doses.

Further detail is superfluous, and I may say in conclusion that the *Æthusa cynapium* of Sussex, Kent, Surrey, Essex, and Hertfordshire is not only absolutely free from the noxious properties attributed to it, but that it is pleasant all, to sight, smell, and taste, and, in the absence of the more fragrant and succulent plants, might well be used as a potherb or a salad. If any one should think differently of the plant of his locality, I will be ready to indulge his scruples, to test the matter with him, and satisfy him, as I have no doubt I shall be able to do; that my conclusions are independent both of locality and season; and that the only influence which these conditions have on Fool's Parsley, as on Hemlock, is to increase or diminish its succulency.

NOTES

ON THE

EXAMINATION OF THE BODIES OF FIFTY CHILDREN

BORN DEAD OR SHORTLY DYING.

(SECOND SERIES.)

By ROBERT CORY, M.D. Cantab.,
ASSISTANT OBSTETRIC PHYSICIAN TO THE HOSPITAL.

The same objects for which the examinations of the bodies of newly-born children were first undertaken, the notes on which were published in the eighth volume of these Reports, have been kept in view while making the examinations of the present series. These were firstly to record the pathological conditions met with, and secondly, to illustrate certain medico-legal questions.

Among the 50 bodies now under consideration, 14 presented undoubted signs of intra-uterine death of some days duration, the remaining 36 presented no such signs. In 14 of the latter there were no evidences of respiration having taken place. In 11 there were evidences of imperfect respiration, and of these five had lived over one hour. In 11 there were evidences of perfect respiration having taken place, and of these 7 had lived more than twelve hours.

33 of the 50 were males and 17 females.

Small Disseminated Growths in two Livers.

In the former series a peculiar condition of the liver was noticed in two bodies which had undergone intra-uterine maceration. The organ was sprinkled over the whole of its surface and throughout its substance with small greyish dots, which could be felt when the fingers were passed over the surface. A third case of the kind, though properly not belonging to the series, was also briefly referred to, as it threw some light upon the other cases. This was a case in which the child was born alive but very shortly died. It belongs to the present series, and will therefore be now more fully described. The case is numbered 69 in Table V at the end of this paper. If reference be made to this it will be seen that the child measured $15\frac{3}{10}$ths inches in length, and weighed 1435 grammes. The weight of the body is greater in proportion to its length than is usual, but this was probably due to ascites presently to be mentioned. The liver weighed 195 grammes, a weight which is at least three times as great as it is usual to find in a healthy fœtus of the same length and weight. The spleen weighed 40·7 grammes, which is at least ten times greater than it ought to have been. The lungs, heart, and kidneys, were also heavier, but the thymus gland was considerably lighter than normal. The abdominal cavity contained a large quantity of clear straw-coloured fluid. There was no peritonitis but the veins of the mesentery were distended with blood. The liver was speckled over with the dots in certain regions only, but where they were evident on the surface they were present also for some depth in the substance of the liver. The regions where the speckling was present were the anterior border of both the right and left lobes. The superior surface of the liver, *i.e.* the part under cover of the diaphragm and the lower posterior surface of both lobes.

The history of syphilis in the mother was quite clear. She was twenty-one years of age and had had a sore on her vulva ten months before her confinement, moreover at the time of her delivery she had sores on her tongue.

The microscopical examination of the liver, after injecting

the portal vein and hardening the liver in Müller's fluid, showed that the dots seen with the naked eye were generally in near relation to a branch of the portal vein, as if the morbid process had commenced near such a vessel. The vessel was not generally embedded in the dot but more often passed to one side of it. The dots themselves consisted of an aggregation of closely clustered small cells with comparatively large nuclei, so that the cell seemed to be almost entirely composed of nucleus, their nuclei nevertheless were a little smaller than the nuclei of the normal liver cells. There was no very definite margin to the dots, for at their periphery the small cells became less crowded and seemed gradually to pass into normal liver cells (see Plate, fig. 1).

The same condition of liver was met with in one other case, No. 80. This was in the body of a fœtus which had undergone intra-uterine maceration, a reference to Table V will show that in this case also the liver was heavier than normal, and the spleen considerably so. The liver was uniformly speckled over the whole of its surface and throughout its substance. The abdominal cavity contained a considerable quantity of a red coloured fluid and a further lymph-like slightly adherent deposit was found on the intestines, on the walls of the abdomen, and on the under surface of the liver.

The history of syphilis in the parents of this case was clear. The father although married for ten years had contracted syphilis two years ago. The mother was thirty years of age, and had previously to her husband's illness been in good health, and had borne healthy children ; afterwards she had suffered from sore throat and a skin eruption, and had had one miscarriage at the third month, besides the dead fœtus now under consideration.

The microscopical examination of the liver in this case was less satisfactory than that of the preceding one, owing to intra-uterine maceration having taken place. None of the liver cells could be recognised as such, but instead a fine mesh-work of tissue with here and there somethings which looked as if they might have been the remains of liver cells. The dots appeared to have the same relation with the branches of the portal vein as the case already described, they were, however, less nuclear,

but more granular in their centres, and there was a slight appearance of fibrillation between the nuclei at their periphery.

The two cases just described, together with two in the former paper, make a total of four cases of the kind, the history of which is more or less complete. All of them present a very close resemblance in their main features.

1st. There is in all a history of syphilis in the parents of recent date. The longest interval between the primary symptom in one or other of the parents and the birth of the child being three years.

2nd. The livers were all enlarged.

3rd. The spleens were all much enlarged.

4th. Ascites was present in all.

5th. It was the liver in all that appeared to have been primarily and chiefly affected.

These cases are suggestive of at least two considerations: firstly, May not syphilis be a remote cause of some of the cases of cirrhosis in early childhood? and, secondly, Why is it that the liver should have been the organ upon which the brunt of the disease fell?

Recently Effused Blood in the Abdomen.

Another abnormal condition met with, of some practical significance, was recently effused blood in the abdomen. This was found in Nos. 55, 58, and 71. In all these cases the liver was traumatically injured. In Case 55 the mother had placenta prævia, and the fœtus was extracted by its feet. The liver was injured on the right side, most probably by the manipulations of the accoucheur. In Case 58 the mother is said to have had a severe fall, and struck her abdomen a day or two before her confinement. There were three great bullæ filled with blood on the right lobe of the liver, and two on the left lobe, besides a considerable quantity of blood in the peritoneum. In Case 71 the mother had placenta prævia, the child was extracted by the feet, and forceps were applied to the after-coming head. The liver of this child was injured, and blood not only existed in the peritoneal cavity, but was extensively effused underneath the peritoneum, extending down

into the scrotum, and into the thighs, and running upward in the direction of the psoas muscle.

These cases certainly show how easily the liver of a child may be injured, and teach forcibly that traction should never be made directly on its body when extracting it feet first.

Ovarian Cyst.—Case 63 was one of twins in which an ovarian cyst of the right ovary existed. The fœtus was 14$\frac{7}{16}$ inches in length, and weighed 1000 grammes. Half the ovary was involved in a unilocular cyst, about 20 mm. in diameter. A preparation of this was made by Mr. Stewart for the museum.

Vegetations on the Tricuspid Valves of the Heart.—In this case, No. 96, a male child was born alive at full term, but died in a few minutes afterwards. When the heart was examined the tricuspid valve was found thickened, and on its anterior division there were some small vegetations. Both divisions of the mitral were also thickened, but there were no vegetations on them. The semilunar valves, both of the aorta and pulmonary artery, were healthy, and there was no other abnormal condition discovered in any other organ of the body. A part of the interest in this case arises from the fact that the disease of the valves was more pronounced on the right than on the left side of the heart. It is to be regretted that no history respecting the mother has at present been obtained in consequence of her having changed her residence shortly after her confinement, she being thus lost sight of.

Supposed Uric Acid Deposits in the Ducts of Bellini.

In four cases, 74, 76, 85, and 77, brown streaks were seen with the naked eye in the pyramids of the kidneys. They radiated from the apices of the kidneys towards their bases, and were very striking when the kidneys were laid open in the usual way. Sometimes they were more distinguishable towards the bases of the pyramids, sometimes more so towards their apices. Under the microscope the streaks could be traced upwards towards the cortex into the region of convoluted tubes and glomeruli, by some called the labyrinth, but they were not evident in the medullary rays. (See Plate,

fig. 2.) These streaks seem generally to have been attributed to deposits of uric acid in the tubules of the kidneys, and are mentioned by several, chiefly German, observers. Schlossberger thought they never occurred in children that had not breathed; Virchow and Elsässer at first adopted this view. Cases, however, were reported of stillborn children whose kidneys, nevertheless, contained the uric acid deposits, so that for medico-legal purposes this condition lost much of its value. Thus, Casper says these deposits "can no longer be acknowledged to be of any diagnostic value in relation to the question of respiratory life."[1]

The streaks found in the kidneys of the cases above mentioned were at first attributed to uric acid deposits. The microscopical examination, however, threw some doubt upon this view, as the streaks were apparently in prepared sections, largely due to vessels distended with blood, and no crystals of uric acid were discovered. However this may be, the following table will show that in the fifty bodies examined, these streaks were only found in cases of children which had lived forty-eight hours or more. The table contains all the cases among the fifty which were known to have survived their birth arranged in an order according to the time they lived. Those who lived the shortest time being placed first. The numbers on the left hand side are the numbers of the cases in Table V.

Table I.

No.	Length of time the child lived after birth.	Condition of kidneys.
69	A few minutes	No streaks.
96	„	„
66	1 hour	„
70	„	„
79	„	„
100	5 hours	„
63	6 hours	„
81	12 hours	„
61	14 hours	„
74	48 hours	Streaks in both kidneys.
76	48 hours	„ „
85	50 hours	„ „
77	56 hours	„ „
95	96 hours	No streaks.

[1] Casper, 'Forensic Medicine,' Syd. Soc. Translation, p. 83, vol. iii.

It will be noticed that streaks in the kidneys were found in *all* the cases which lived from forty-eight to fifty-six hours, but in none of the others, and that they were always found in *both* kidneys. They were never once seen, though looked for, in the stillborn children.

Retarded Ossification in the Bones of a Fœtus, the Mother of which suffered from Osteo-malacia.

Case 68 in Table V.[1] The mother, æt. 31, was married in 1868. Her confinements took place as follows:

The first in September, 1869, of a girl now living and healthy.
„ second in November, 1870, of a girl now living and healthy.
„ third in January, 1872, of a miscarriage at the 6th month.
„ fourth in March, 1873, of a girl now living and healthy.
„ fifth in June, 1877, of a child destroyed at full term to deliver mother.
„ sixth in May, 1878, of a boy destroyed at 7½ months to deliver mother.

She stated that her illness commenced about eight years ago, at the time when she had her miscarriage, and that she had been gradually getting worse since, but more rapidly so during her three subsequent pregnancies. Her fifth confinement was at full term, the bones of the pelvis were then so distorted that it was necessary to perform craniotomy in order to deliver her. During her sixth and last pregnancy, labour was induced between the seventh and eighth months, but it was even then found necessary to perforate the head of the child after having turned. This child, No. 68, measured $15\frac{1}{10}$th inches in length and weighed 1180 grammes. The bones of its head were very imperfectly ossified. There were only two centres in the sternum, one for the manubrium or first piece of the sternum, which measured 2½ mm. in diameter, and one for the second piece of the gladiolus or third piece of sternum, which measured 1½ mm. The centre for the first piece of the gladiolus or second piece of sternum was not present.

This order of appearance of the centres in the sternum is not very uncommon.

[1] These notes were taken in January, 1880.

The centre for the os calcis measured 3½ mm. in diameter, and that for the astragalus 2 mm. in diameter.

Comparisons with fœtuses of the same length and size at once showed how backward these centres of ossification were.

Medico-legal questions.

The same medico-legal questions that received attention in the last paper have been further considered in the present. The first of which is—

The value of the Static Tests of Respiration.

The question amounts to this, Of what value, in a medico-legal sense, are the methods employed to estimate the increase of weight of the lungs due to respiration?

A reference to Table II will show of how little value these methods are for medico-legal purposes. It matters not whether the lungs be compared to the whole of the body, as Ploucquet suggested, or to the liver, as Bernt suggested, or to the kidneys.

The table contains *all* the cases in which it was ascertained whether the child was stillborn or had lived. It does not contain the cases of intra-uterine maceration, or cases which weighed less than 900 grammes.

It will be seen that they are arranged in three classes. The first contains 6 cases, all of which were stillborn and had not respired; the second contains 5 cases, in which imperfect respiration had taken place; and the third contains 8 cases, in which perfect respiration had taken place. In the first class the average relation of the lungs to the body is as 1 is to 41·6, in the second class as 1 is to 43·8, and in the third class as 1 is to 46. The average relation does not vary much in the three classes, but what variation there is between the first and the third class is the reverse to what it ought to be.

The average relation of the lungs to the liver in the three classes is almost identical, and that of the lungs to the kidneys only varies very slightly.

TABLE II.—The weights are given in grammes.

Cases in which no respiration had taken place.

No.	Weight of body.	Weight of lungs.	Relation of lungs to body.	Relation of lungs to liver.	Relation of lungs to kidneys.
64	1025	20·32	1 : 50·4	1 : 3·03	1 : ·588
65	937	23·35	1 : 40·1	1 : 1·81	1 : ·361
68	1180	30·75	1 : 38·4	1 : 1·59	1 : ·366
78	2175	63·35	1 : 34·3	1 : 1·49	1 : ·551
91	2470	64·55	1 : 38·2	1 : 2·19	1 : ·294
98	3430	51·89	1 : 66·1	1 : 3·93	1 : ·579
Average	1869·5	42·37	1 : 44·6	1 : 2·34	1 : ·456

Cases in which imperfect respiration had taken place.

61	960	25·92	1 : 37	1 : 1·69	1 : ·305
66	1220	23·53	1 : 51·8	1 : 2·97	1 : ·792
70	1120	42·78	1 : 26·2	1 : 1·33	1 : ·260
96	3305	81·85	1 : 40·4	1 : 2·16	1 : ·274
99	3700	57·95	1 : 63·8	1 : 3·55	1 : ·532
Average	2061	46·4	1 : 43·8	1 : 2·38	1 : ·432

Cases in which perfect respiration had taken place.

76	1570	73·25	1 : 21·4	1 : 1·06	1 : ·265
77	1800	28·40	1 : 63·4	1 : 2·64	1 : ·855
81	2610	52·41	1 : 49·8	1 : 1·54	1 : ·406
85	1860	47·04	1 : 40	1 : 1·95	1 : ·394
86	2370	47·42	1 : 50	1 : 2·21	1 : ·429
90	2760	73·95	1 : 37·3	1 : 2·93	1 : ·356
93	2900	45·84	1 : 63·3	1 : 4·14	1 : ·391
100	3730	86·21	1 : 43·1	1 : 2·17	1 : ·494
Average	2450	56·81	1 : 46·0	1 : 2·33	1 : ·449

Position of the umbilicus.

Table III is drawn up for the purpose of showing the distance of the umbilicus from the centre of the body at the different periods of development. It was found that it is always placed below the centre of the body, and that the average distance below is ·789 of an inch (about $\frac{13}{16}$ths). Further, it was found that this distance was maintained irrespectively of the length of the fœtus, so that in a fœtus of 5 inches the umbilicus is proportionally much further below the centre than in one of 20 inches, but in both the distance is on an average about $\frac{13}{16}$ths of an inch below.

The length of the extended arms as compared with the length of the body.

Among the 50 bodies there were 39 in which the length of the extended arms fell short of the length of the body, and 10 in which it exceeded it. In 1 case the length of the body was not ascertained. On an average it was found that the length of the extended arm is less by ·432 of an inch than the length of the body, and this is nearly true whether a fœtus be 5 inches or 20 inches in length.

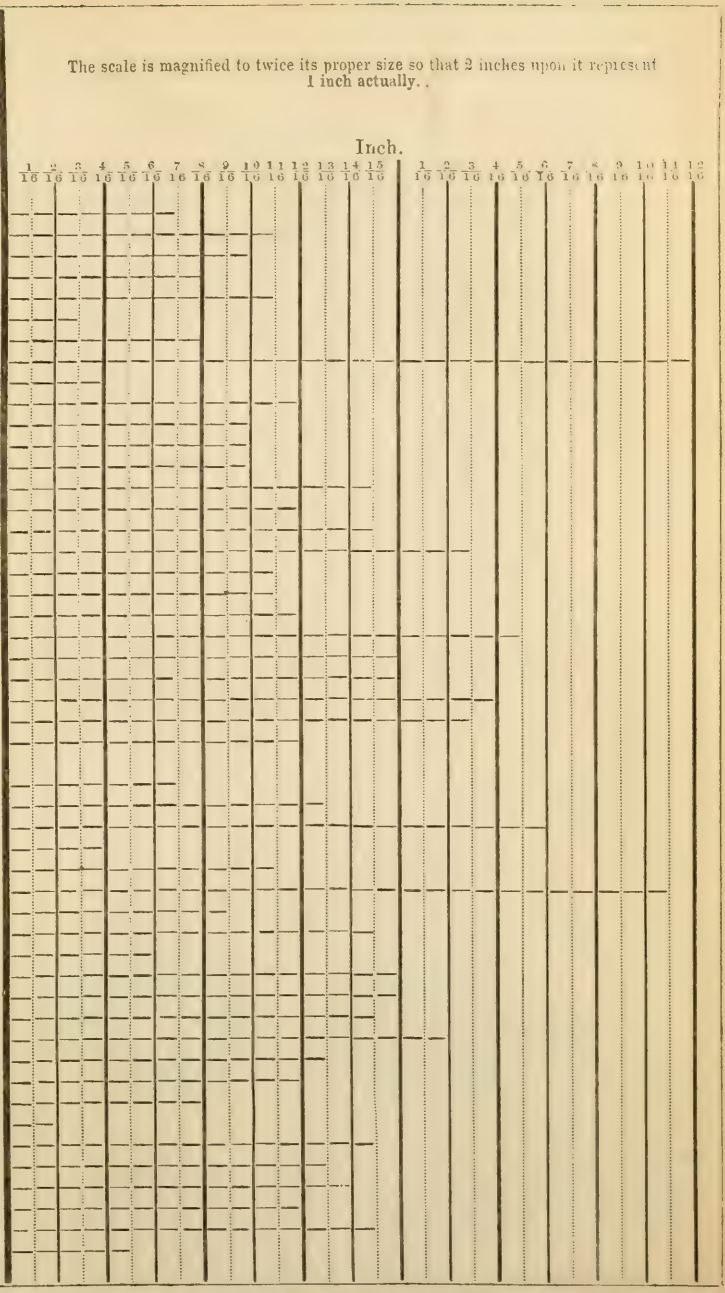
Fractures of the skull.

Chaussier's experiments of dropping dead children the distance of eighteen inches head first upon a paved floor were again repeated, and with almost exactly the same results as his. Out of the 15 children experimented upon 11 had one or both parietal bones fractured. This would seem to show that there is a very strong probability of a child having its head fractured should it be born suddenly and fall to the floor while the mother is standing.

Table III.

	Sex.	Half the length of body.	Length from heels to umbilicus.	Difference or the distance of umbilicus below centre of body.
51	M	2 8/16	2 1/16	7/16
52	M	3 9/16	2 14/16	11/16
53	M	4 6/16	3 12/16	10/16
54	M	5 10/16	5 2/16	8/16
55	M	5 11/16	5	11/16
56	F	6 7/16	6 4/16	3/16
57	M	6 12/16	6 4/16	8/16
58	M	7	5 4/16	28/16
59	M	7	6 12/16	4/16
60	F	7	6 4/16	12/16
61	M	7 2/16	6 8/16	10/16
62	F	7 2/16	6 8/16	10/16
63	F	7 3/16	6 9/16	10/16
64	M	7 4/16	6 5/16	15/16
65	M	7 6/16	6 10/16	12/16
66	M	7 7/16	6 8/16	15/16
67	F	7 8/16	6 5/16	19/16
68	M	7 9/16	6 14/16	11/16
69	F	7 9/16	6 14/16	11/16
70	M	7 10/16	6 14/16	12/16
71	M	7 16/16	6 10/16	21/16
72	M	8	7	16/16
73	M	8 4/16	7 4/16	16/16
74	F	8 6/16	7 2/16	20/16
75	M	8 7/16	7 4/16	19/16
76	M	8 9/16	7 13/16	12/16
77	F		8 1/16	
78	M	8 0/16	8 2/16	7/16
79	M	8 10/16	7 13/16	13/16
80	M	8 10/16	7 4/16	22/16
81	F	8 10/16	8 6/16	4/16
82	F	8 11/16	8	11/16
83	M	8 11/16	7	27/16
84	F	8 12/16	8 3/16	9/16
85	F	8 12/16	7 13/16	15/16
86	F	8 14/16	8 8/16	6/16
87	M	9 2/16	8 5/16	16/16
88	M	9 5/16	8 5/16	16/16
89	F	9 6/16	8 7/16	15/16
90	F	9 6/16	8 4/16	18/16
91	M	9 10/16	8 13/16	13/16
92	F	9 12/16	9	12/16
93	F	9 14/16	9 6/16	8/16
94	M	10	9 14/16	2/16
95	M	10 1/16	9 2/16	15/16
96	M	10 2/16	9 5/16	13/16
97	M	10 8/16	9 10/16	14/16
98	M	10 8/16	9 12/16	12/16
99	M	10 8/16	9 9/16	15/16
100	M	10 11/16	10 6/16	5/16

The scale is magnified to twice its proper size so that 2 inches upon it represent 1 inch actually. .



The dark line in the table represents the middle line of the body. The horizontal plain lines drawn from this represent the distance the umbilicus was situated below the centre of the body. The dotted lines of the scale mark the odd $\frac{1}{16}$ths, whereas the plain lines indicate the even $\frac{1}{16}$ths.

Table IV.—This table gives the weight and sex of the dead children experimented upon. The numbers prefixed refers to Table V at the end of this paper.

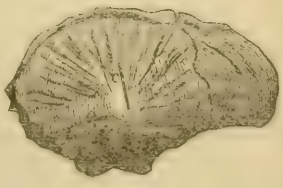
No.	Sex.	Weight.	Bones fractured.
63	F	1000	Fracture of both parietal bones.
66	M	1220	No fracture.
77	F	1800	Fracture of right parietal.
78	M	2175	No fracture.
81	F	2610	Fracture of right parietal.
82	F	2010	„ „ left parietal.
85	F	1860	„ „ right parietal.
86	F	2370	„ „ both parietal bones.
90	F	2760	„ „ right parietal.
91	M	2470	No fracture.
94	M	3100	Fracture of left parietal bone.
95	M	3120	No fracture.
96	M	3305	Fracture of right parietal bone.
99	M	3700	„ „ left „ „
100	M	3730	„ „ right „ „

The fractures which occurred could all be referred to two types. The first is represented in Fig. 1, where the fractures extended from the suture towards the parietal eminence along the lines of ossification. This happened in Nos. 82, 99, and 100. Fig. 1 *a*, *a* represents the position of the fractures in 82 and 100, and *b* the position in 99. The second type of fracture is represented in Fig. 2. In this class the fractures

Fig. 1.



Fig. 2.



proceeded from the parietal eminence towards the suture, and they were of angular form, that is to say, they proceeded in two directions along the lines of ossification, having the parietal eminence as a centre from which they radiated.

This form of fracture occurred in Nos. 77, 81, 85, 86, 90, 94, and 96.

No.	Sex.	Length of body	Length of extended arms.	Length from heels to umbilicus.	Weight of body.	Weight of liver.	Weight of lungs.		Weight of heart.	Weight of kidneys.		We
							R.	L.		R.	L.	spl
		inches.	inches.	inches.	grms.	grms.	grms.	grms.	grms.	grms.	grms.	gr
51	M.	5	4 7/16	2 1/16	36·55	1·77	·82	·62	·23	·13	·12	
52	M.	7 3/16	6 5/16	2 1/16	122·1	6·45	2·98	2·55	·9	·36	·39	
53	M.	8 2/16	8 8/16	3 2/16	197	10·32	4·39	3·45	1·82	·85	·9	
54	M.	11 4/16	11 10/16	5 2/16	555	34·92	5·83	5·09	4·74	2·91	2·72	0·
55	M.	11 6/16	11 12/16	5	497	24·28	6·12	4·37	3·45	1·81	2·06	0·h.
56	F.	12 14/16	13 4/16	6 4/16	675	36·	6·8	5·4	4·82	3·4	2·92	1·
57	M.	13 8/16	13 14/16	6 4/16	820	45·	11·48	9·7	5·7	4·	3·7	1·
58	M.	14	13 8/16	5 4/16	870	47·	11·05	8·22	5·7	4·52	4·52	1·r.
59	M.	14	13 10/16	6 2/16	755	18·97	7·95	6·91	6·11	3·05	3·1	1·
60	F.	14	13 8/16	6 4/16	850	22·5	8·37	6·75	5·97	2·71	2·82	1·
61	M.	14 3/16	14 1/16	6 8/16	960	44·	14·65	11·27	6·7	4·	3·9	1·
62	F.	14 4/16	13 6/16	6 8/16	875	46·97	12·57	10·12	6·02	5·38	5·37	5·
63	F.	14 7/16	14 10/16	6 9/16	1000	50·	15·8	12·6	8·85	4·82	5·15	1·
64	M.	14 8/16	13 9/16	6 5/16	1025	62·	11·6	8·72	5·77	5·65	6·3	3·
65	M.	14 12/16	13 11/16	6 10/16	937	42·32	12·85	10·5	6·7	4·07	4·37	2·
66	M.	14 14/16	14 5/16	6 5/16	1220	70·	13·4	10·13	9·04	9·44	9·2	2·
67	F.	15 1/16	14 6/16	6 5/16	1455	85·	13·25	10·55	7·42	6·25	6·17	9·of fall of
68	M.	15 1/16	14 8/16	6 7/16	1180	49·	16·98	13·77	7·83	6·12	5·14	1·
69	F.	15 3/16	14 9/16	6 14/16	1435	195·	22·7	18·25	13·35	14·35	13·15	40·
70	M.	15 3/16	14 7/16	6 14/16	1120	57·	23·25	19·53	...	5·35	5·78	1·
71	M.	15 15/16	15 14/16	6 10/16	1440	...	18·62	14·47	11·72	6·37	6·49	3·h.
72	M.	16	15 15/16	7	1415	35·9	13·65	10·9	8·85	8·53	8·57	2·
73	M.	16 8/16	16 6/16	7 4/16	1875	21·66	20·65	16·98	11·9	3·9	4·3	2·er.
74	F.	16 12/16	16 3/16	7 2/16	1530	64·	31·72	25·87	...	7·45	7·21	2·
75	M.	16 14/16	16 4/16	7 4/16	1550	49·	16·	14·44	8·6	5·9	5·88	2·r nine days
76	M.	17 1/16	16 11/16	7 13/16	1570	78·	43·5	29·75	14·15	9·2	9·88	8·
77	F.	17 2/16	15 1/16	8 1/16	1800	75·	14·95	13·45	23·82	12·27	12·02	12·ree lobes; abnormal.
78	M.	17 3/16	17 7/16	8 2/16	2175	95·	37·25	26·1	16·55	16·66	18·25	5·
79	M.	17 3/16	16 13/16	7 13/16	1830	80·	31·05	23·32	12·45	8·62	7·76	3·
80	M.	17 4/16	17 8/16	...	127·	25·1	19·65	12·37	15·	16.17	14·	
81	F.	17 4/16	17 11/16	8 6/16	2610	130·	31·24	21·17	19·6	10·1	11·17	4·
82	F.	17 6/16	16 11/16	8	2010	102·	30·4	24·3	14·6	11·97	12·27	3·
83	M.	17 7/16	16 3/16	7	1905	76·15	19·1	18·18	11·02	8.8	9·47	7·
84	F.	17 7/16	17 1/16	8 3/16	2530	104·	26·57	20·85	17·5	7·42	7·95	14·
85	F.	17 8/16	16 13/16	7 13/16	1860	92·	27·62	19·42	15·72	9·61	8·95	4·
86	F.	17 12/16	17 2/16	8 8/16	2370	105·	25·12	22·3	23·95	10·94	9·42	5·
87	M.	18 5/16	17 3/16	8 2/16	2505	...	...	...	...	...	...	...
88	M.	18 10/16	17	8 6/16	2450	130·	23·5	21·6	16·42	18·15	16·52	23·ilis (?).
89	F.	18 11/16	18 7/16	8 7/16	2325	182·	32·7	26·1	16·75	12·62	10·67	23·
90	F.	18 13/16	18 2/16	8 4/16	2760	217·	40·75	33·2	26·05	13·09	13·27	27·
91	M.	19 5/16	18 4/16	8 13/16	2470	142·	35·55	29·	17·2	9·02	10·	7·
92	F.	19 8/16	19 7/16	9	2580	95·	23·27	17·6	15·67	8·25	8·17	4·
93	F.	19 13/16	19 4/16	9 6/16	2900	190·	24·6	21·24	19·25	9·57	8·37	5·7
94	M.	20	19 10/16	9 14/16	3100	170·	39·2	28·05	21·6	14·45	14·26	10·C.
95	M.	20 2/16	19 10/16	9 2/16	3120	155·	40·2	29·35	21·55	14·4	15·15	11·
96	M.	20 3/16	19 8/16	9 6/16	3305	177·	45·7	36·15	22·1	12·2	10·3	8·
97	M.	21	20 1/16	9 10/16	3820	217·	31·29	29·67	...	14·85	13·63	18·
98	M.	21	20	9 12/16	3430	204·	28·82	23·07	...	15·09	14·95	10·
99	M.	21	20 2/16	9 9/16	3700	205·	33·6	24·35	26·3	16·05	14·8	14·
100	M.	21 6/16	21 7/16	10 8/16	3730	187·	49·6	36·61	21·82	20·4	22·22	8·3

No.	Sex.	Length of body	Length of extended arms.	Length from heels to umbilicus.	Weight of body.	Weight of liver.	Weight of lungs.		Weight of heart.	Weight of kidneys		Weight of spleen.	Weight of thymus.	Weight of supra-renal capsules.		Weight of placenta.	Length of cord.	Duration of life.	Buoyancy of lungs in water.	Remarks.
							R.	L.		R.	L.			R.	L.					
		inches.	inches.	inches.	grms.	grms.	grms.	grms.	grms	grms.	grms.	grms	grms.	grms.	grms.	grms.	inches.			
51	M.	5	$4\frac{7}{10}$	$2\frac{1}{10}$	36·55	1·77	·82	·62	·23	·13	·12	·02	·04	·07	·07	...	...	Still-born	Sink; no respiration	.....
52	M.	$7\frac{3}{10}$	$6\frac{4}{10}$	$2\frac{14}{10}$	122·1	6·45	2·98	2·55	·9	·36	·39	·06	·11	·27	·27	...	...	,,	,, ,,	Mother a prostitute.
53	M.	$8\frac{12}{10}$	$8\frac{8}{10}$	$3\frac{12}{10}$	197	10·32	4·39	3·45	1·82	·85	·9	·22	·19	·57	·65	...	...	,,	,, ,,	.....
54	M.	$11\frac{7}{10}$	$11\frac{1}{10}$	$5\frac{2}{10}$	555	34·92	5·83	5·09	4·74	2·91	2·72	0·96	1·47	1·1	1·17	...	...	,,	No respiration.	Blood in peritoneum; placenta prævia; breech.
55	M.	$11\frac{6}{10}$	$11\frac{3}{10}$	5	497	24·28	6·12	4·37	3·45	1·81	2·06	0·68	0·58	1·1	1·24	...	...	,,	Sink; no respiration	Twin.
56	F.	$12\frac{14}{10}$	$13\frac{4}{10}$	$6\frac{4}{10}$	675	36·	6·8	5·4	4·82	3·4	2·92	1·58	1·97	·48	·66	...	...	,,	,, imperfect respiration	,,
57	M.	$13\frac{3}{10}$	$13\frac{14}{10}$	$6\frac{4}{10}$	820	45·	11·48	9·7	5·7	4·	3·7	1·22	2·9	1·76	1·73	...	...	.. ...	Float; ,, ,,	Blood in peritoneum; history of fall of mother.
58	M.	14	$13\frac{8}{10}$	$5\frac{4}{10}$	870	47·	11·05	8·22	5·7	4·52	4·52	1·25	2·5	1·9	2·02	...	...	.....	.....	No history of syphilis.
59	M.	14	$13\frac{1}{10}$	$6\frac{12}{10}$	755	18·97	7·95	6·91	6·11	3·05	3·1	1·19	1·	·61	·6	...	...	Intra-uterine maceration	Sink	Syphilis (father).
60	F.	14	$13\frac{5}{10}$	$6\frac{8}{10}$	850	22·5	8·37	6·75	5·97	2·71	2·82	1·44	...	1·04	1·04	160	$20\frac{8}{10}$	,, ,,	,, imperfect respiration	Twin.
61	M.	$14\frac{3}{10}$	$14\frac{1}{10}$	$6\frac{8}{16}$	960	44·	14·65	11·27	6·7	4·	3·9	1·54	3·17	·71	·81	...	...	Lived 14 hours	,,	Mother had warts (?) about vulva.
62	F.	$14\frac{4}{10}$	$13\frac{2}{10}$	$6\frac{9}{10}$	875	46·97	12·57	10·12	6·02	5·38	5·37	5·85	·78	1·17	1·23	280	...	Intra-uterine maceration	Float; imperfect respiration	Right ovarian cyst; twin.
63	F.	$14\frac{4}{10}$	$14\frac{1}{10}$	$6\frac{9}{10}$	1000	50·	15·8	12·6	8·85	4·82	5·15	1·95	3·3	·83	·89	...	...	Lived 6 hours	Sink; no respiration	.....
64	M.	$14\frac{8}{10}$	$13\frac{0}{10}$	$6\frac{5}{10}$	1025	62·	11·6	8·72	5·77	5·65	6·3	3·6	2·05	1·40	1·45	...	...	Still-born	,, ,,	Induced labour.
65	M.	$14\frac{12}{10}$	$13\frac{11}{10}$	$6\frac{10}{10}$	937	42·32	12·85	10·5	6·7	4·07	4·37	2·02	3·69	1·05	1·27	...	...	,,	Sink; imp. resp.; sp. gr., R. 1017; L. 1030	.....
66	M.	$14\frac{14}{10}$	$14\frac{15}{10}$	$6\frac{8}{10}$	1220	70·	13·4	10·13	9·04	9·44	9·2	2·24	5·37	2·04	2·64	...	...	Lived 1 hour	.....	Chest cavities filled with fluid; history of fall of mother.
67	F.	$15\frac{1}{10}$	$14\frac{6}{10}$	$6\frac{6}{10}$	1455	85·	13·25	10·55	7·42	6·25	6·17	9·7	1·7	1·2	1·45	...	...	Intra-uterine maceration		Mother suffered from osteo malacia.
68	M.	$15\frac{1}{10}$	$14\frac{8}{10}$	$6\frac{7}{14}$	1180	49·	16·98	13·77	7·83	6·12	5·14	1·48	3·41	1·43	1·6	...	...	Still-born	Sink; no respiration	Spotted liver; ascites.
69	F.	$15\frac{3}{10}$	$14\frac{9}{10}$	$6\frac{11}{16}$	1435	195·	22·7	18·25	13·35	14·35	13·15	40·7	1·55	1·95	2·15	...	...	Lived, but died in a few minutes	,, imperfect respiration	.....
70	M.	$15\frac{5}{10}$	$14\frac{7}{10}$	$6\frac{14}{16}$	1120	57·	23·25	19·53	...	5·35	5·78	1·37	3·6	1·17	1·23	...	...	Lived 1 hour	,, ,, ,,	Blood in peritoneum; placenta prævia; breech.
71	M.	$15\frac{1}{10}$	$15\frac{4}{10}$	$6\frac{14}{16}$	1440	...	18·62	14·47	11·72	6·37	6·49	3·62	7·65	1·6	1·76	...	...	Still-born	,, no respiration	.....
72	M.	16	$15\frac{15}{16}$	7	1415	35·9	13·65	10·9	8·85	8·53	8·57	2·12	1·12	1·67	1·62	...	...	Intra-uterine maceration	,,	Bladder very large; kidneys large; small liver.
73	M.	$16\frac{8}{10}$	$16\frac{6}{10}$	$7\frac{4}{10}$	1875	21·66	20·65	16·98	11·9	3·9	4·3	2·35	1·69	1·2	1·3	...	...	,, ,,	,,	Streaks in kidneys.
74	F.	$16\frac{12}{10}$	$16\frac{3}{10}$	$7\frac{9}{10}$	1530	64·	31·72	25·87	...	7·45	7·21	2·9	3·45	1·93	2·07	...	...	Lived 48 hours	Float; perfect respiration	Mother felt no movement of child for seven or nine days before labour.
75	M.	$16\frac{14}{16}$	$16\frac{5}{16}$	$7\frac{4}{16}$	1550	49·	16·	14·44	8·6	5·9	5·88	2·02	4·12	1·05	1·02	...	...	Intra-uterine maceration	Sink	Streaks in kidneys.
76	M.	$17\frac{1}{10}$	$16\frac{11}{10}$	$7\frac{13}{10}$	1570	78·	43·5	29·75	14·15	9·2	9·88	8·44	2·9	1·35	1·6	...	...	Lived 48 hours	Float; perfect respiration	Heart large; right lung not divided into three lobes; streaks in kidneys; ossification of sternum abnormal.
77	F.	$17\frac{2}{10}$	$15\frac{6}{10}$	$8\frac{1}{16}$	1800	75·	14·95	13·45	23·82	12·27	12·02	12·57	3·35	1·27	1·64	...	...	,, 56 ,, or more	,, ,, ,,	Born in membranes; twin.
78	M.	$17\frac{2}{10}$	$17\frac{7}{10}$	$8\frac{2}{16}$	2175	95·	37·25	26·1	16·55	16·66	18·25	5·22	12·54	2·23	2·58	392	$17\frac{8}{10}$	Still-born	Sink; no respiration	.....
79	M.	$17\frac{3}{10}$	$16\frac{13}{10}$	$7\frac{13}{16}$	1830	80·	31·05	23·32	12·45	8·62	7·76	3·85	8·45	1·9	2·6	...	...	Lived 1 hour	,, imperfect respiration	Spotted liver.
80	M.	$17\frac{4}{10}$	$17\frac{8}{16}$	$7\frac{4}{16}$	...	127·	25·1	19·65	12·37	15·	16.17	14·82	3·2	3·4	2·7	...	...	Intra-uterine maceration	,,	.....
81	F.	$17\frac{4}{10}$	$17\frac{11}{16}$	$8\frac{0}{16}$	2610	130·	31·24	21·17	19·6	10·1	11·17	4·33	6·32	2·13	3·77	...	...	Lived 12 hours	Float; perfect respiration	Born in membranes; twin.
82	F.	$17\frac{5}{10}$	$16\frac{11}{16}$	8	2010	102·	30·4	24·3	14·6	11·97	12·27	3·5	7·57	2·92	2·85	319	18	Still-born	Sink; no respiration	Syphilis (father).
83	M.	$17\frac{7}{10}$	$16\frac{5}{10}$	7	1905	76·15	19·1	18·18	11·02	8·8	9·47	7·65	1·3	2·22	2·36	...	...	Intra-uterine maceration	Sink; sp. gr., R. 1035; L. 1036	Ascites; syphilis (?).
84	F.	$17\frac{7}{10}$	$17\frac{10}{16}$	$8\frac{3}{16}$	2530	104·	26·57	20·85	17·5	7·42	7·95	14·07	4·06	2·22	2·57	...	...	,, ,,	,, ,, 1040; L. 1041	Streaks in kidneys; child died in convulsions.
85	F.	$17\frac{7}{10}$	$16\frac{13}{10}$	$7\frac{13}{16}$	1860	92·	27·62	19·42	15·72	9·61	8·95	4·5	5·55	2·33	2·35	...	...	Lived 50 hours	Float; perfect respiration	Effusion of blood under arachnoid.
86	F.	$17\frac{12}{16}$	$17\frac{2}{16}$	$8\frac{4}{16}$	2370	105·	25·12	22·3	23·95	10·94	9·42	5·14	3·86	3·22	3·3	...	...	.....	,, ,, ,,	No history of syphilis.
87	M.	$18\frac{4}{16}$	$17\frac{5}{16}$	$8\frac{5}{16}$	2505	...	...	...	...	...	...	...	...	...	...	...	...	Intra-uterine maceration	.....	History of fall of mother; large spleen; syphilis (?).
88	M.	$18\frac{10}{16}$	17	$8\frac{8}{16}$	2450	130·	23·5	21·6	16·42	18·15	16·52	23·3	3·35	2·02	2·14	...	...	,, ,,	,, ,,	Syphilis (father).
89	F.	$18\frac{11}{10}$	$18\frac{7}{10}$	$8\frac{7}{16}$	2325	182·	32·7	26·1	16·75	12·62	10·67	23·95	7·	2·88	2·72	...	...	,, ,,	,, ,, ...	Ascites; syphilis (?).
90	F.	$18\frac{13}{16}$	$18\frac{5}{16}$	$8\frac{8}{16}$	2760	217·	40·75	33·2	26·05	13·09	13·27	27·3	4·62	4·2	4·	...	...	Still-born	Float; perfect respiration	.....
91	M.	$19\frac{6}{16}$	$18\frac{4}{16}$	$8\frac{13}{16}$	2470	142·	35·55	29·	17·2	9·02	10·	7·5	8·35	3·	3·95	...	...	Intra-uterine maceration	Sink; no respiration	.....
92	F.	$19\frac{8}{16}$	$19\frac{7}{16}$	9	2580	95·	23·27	17·6	15·67	8·25	8·17	4·38	4·4	1·15	2·55	...	...	.....	.....	Child of servant; born under bedclothes.
93	F.	$19\frac{13}{16}$	$19\frac{4}{16}$	$9\frac{0}{16}$	2900	190·	24·6	21·24	19·25	9·57	8·37	5·75	8·86	4·47	4·64	...	...	.....	Float; perfect respiration	Twin; labour concluded before arrival of O. C.
94	M.	20	$19\frac{10}{16}$	$9\frac{14}{16}$	3100	170·	39·2	28·05	21·6	14·45	14·26	10·55	13·37	3·95	3·67	...	...	Lived 96 hours	,, ,, ,,	.....
95	M.	$20\frac{2}{16}$	$19\frac{10}{16}$	$9\frac{2}{16}$	3120	155·	40·2	29·35	21·55	14·4	15·15	11·15	12·4	2·72	3·63	...	...	Lived a few minutes	,, imperfect respiration	Tricuspid valve diseased.
96	M.	$20\frac{3}{16}$	$19\frac{5}{16}$	$9\frac{5}{16}$	3305	177·	45·7	36·15	22·1	12·2	10·3	8·8	11·6	2·89	3·37	...	...	.....	Sink ,, ,,	.....
97	M.	21	$20\frac{1}{16}$	$9\frac{10}{16}$	3820	217·	31·29	29·67	...	14·85	13·63	18·6	11·57	5·37	5·57	...	...	.....	,, no respiration	.....
98	M.	21	20	$9\frac{13}{16}$	3430	204·	28·82	23·07	...	15·09	14·95	10·17	7·85	7·37	7·77	...	...	Still-born	Imperfect respiration	.....
99	M.	21	$20\frac{5}{16}$	$9\frac{9}{16}$	3700	205·	33·6	24·35	26·3	16·05	14·8	14·8	14·37	1·9	2·2	...	...		Float; perfect respiration	.....
100	M.	$21\frac{9}{16}$	$21\frac{7}{16}$	$10\frac{6}{16}$	3730	187·	49·6	36·61	21·82	20·4	22·22	8·35	15·68	3·66	4·22	...	...	Lived 5 hours		.....

In Nos. 77, 81, 85, 90, and 96 it was the right, and in No. 94 it was the left parietal bone which was fractured, and in No. 86 both parietal bones were fractured. In No. 63 the right parietal was fractured according to the first type, and the left according to the second type of fracture.

EXPLANATION OF PLATE

Illustrating Dr. Cory's paper on the Examination of the Bodies of Fifty Children Born Dead or Shortly Dying.

FIG. 1. Preparation from the liver of Case 69.

a. Interlobular vein.

b. Normal liver cells.

c. Cluster of small cells forming a dot.

FIG. 2. From the kidney of Case 76.

a. Glomeruli.

b. Labyrinth.

c. Medullary ray.

d. One of the streaks.

Fig. 1.

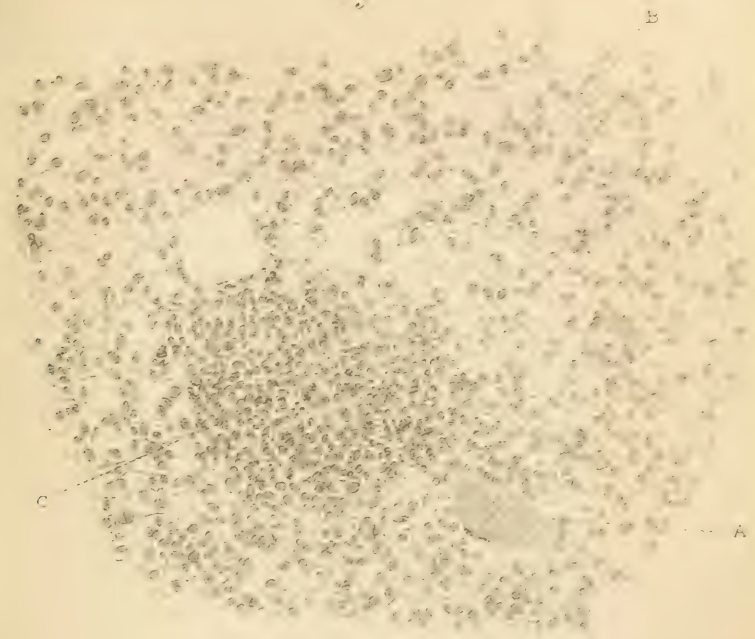




Fig 2

ON LENGTHENING OF THE LIMB AS A RESULT OF KNEE-JOINT DISEASE.

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It has long been noticed that lengthening of a limb may follow disease, and cases of so-called hypertrophy have been recorded as resulting from disease somewhere in the limb itself, but I do not know of any careful observations upon any series of cases. Individual cases have been reported, and it was owing to such a case being brought before the Pathological Society by Mr. Sydney Jones in 1875[1] that I was led to inquire into the subject more carefully, and examine a class of cases likely to throw some light upon the prevalence of this condition. The result of a few observations at that time showed me that some lengthening of the limb was of rather common occurrence after disease of the knee-joint, but the observations were too few to be of much value, and the expression of opinion by surgeons of eminence and experience was so opposed to these results that only further inquiry could prove how far my first observations were exceptional or otherwise.

The following cases have been examined from time to time as opportunity offered, and may prove of interest in more ways than one, for they seem to show that in a certain class of cases of joint disease a careful measurement of the respective parts of a limb may help to determine the extent and locality

[1] 'Trans. Path. Soc.,' vol. xxvi, 1875, p. 159.

of the disease. It may be, and I think it is, possible to say after such measurements which bone is affected, whether femur, or tibia, or patella, and whether the disease is only synovial, or whether it is essentially bony. I do not, of course, mean to discard other means of observation, but I think much greater value should be attached to accurate measurement than is usually done.

And here I would premise that in the majority of cases such accuracy is obtainable by ready means—by repeated observations, and by only more than ordinary care, defining accurately any point of bone which is to be one's landmark, and paying especial attention to the normal position of the pelvis. The effect of overlooking this latter important item I have discussed at length in a former number of these 'Reports.'[1] In other cases, however, where much swelling or tenderness exists, such observations are by no means easy, and for such cases I have used a plain flat rule, or its equivalent, a long outside splint, after marking the bony points carefully, and making sure the skin does not shift. But neither this nor a special apparatus I had made answered as well in the majority of cases as careful measurement with the ordinary tape measure. When I could not ensure the accuracy of an observation the case was omitted, but this was comparatively rare.

The class of cases brought under observation was that of knee-joint disease in young persons—in those whose bones were growing fast—where from their age it might be assumed that the epiphyses were not yet united. Most of them occurred in the wards or out-patient room at St. Thomas's, but I am indebted to the kindness of Mr. W. K. Trevor for the opportunity of examining several cases in the Margate Infirmary, and adding these observations to the list. As far as I am able I have given the references to the cases rather fully, and while acknowledging the courtesy of my colleagues in affording me the means of making many of these observations, it may, I trust, be possible to trace some of the cases further, and where excision or amputation, or death and post-mortem examination has taken place, the seat and extent and nature of the disease may be verified.

[1] Vol. viii, 1878, "On a Possible Source of Fallacy in the Measurements of the Lower Limbs."

When disease occurs in a knee-joint in a young growing person, and that disease, whatever its cause, becomes chronic, it is evident that the nutrition of the joint and its surroundings must necessarily be modified. If the disease be originally in the bone itself the nutrition and growth of that bone would naturally be most affected, and affected in two quite opposite directions. Growth may be arrested or may be exaggerated. If arrested the disease would appear to be very extensive, involving a large area, as may be seen in Case 20, and it may, I think, be assumed that such a condition would be found after necrosis involving the line of the epiphysis. If exaggerated, then the disease giving rise to the elongation of the bone would appear to be more local, and therefore more amenable to treatment, operative or otherwise. Any cause giving rise to chronic hyperæmia of the growing line—of the junction of the epiphysis with the shaft—would almost necessarily tend to increased growth, and in perhaps the majority of cases such cause—secondary though it may be—is found in local necrosis.

If the disease be almost entirely limited to the synovial tissues, it would not be anticipated that the growth of the bone would be disturbed, and Case 6 would appear to show this. But it is so obvious that disease beginning in synovial tissues may extend to the cartilaginous surfaces and the bones themselves that one would certainly anticipate that in many cases the conditions for excessive growth of one or other bone would be found. And this is, I think, traceable in some of the following cases where I have noted that the origin of the disease was spontaneous. But a disease originally synovial and spreading through cartilage to the outer portion of the bone may not dip deep enough to affect the real line of growth. This especially might be expected to occur in more healthy constitutions, and, therefore, it is not surprising that occasionally no increase in growth would be found. Case 7 shows this to some extent, but it must be borne in mind that the patient was the oldest of the series, being twenty-eight years of age, but inasmuch as she had suffered from the mischief seven years I have included the case.

Case 1.—Agnes Tanner, æt. 16. St. Thomas's Hospital, 1875. Disease of right knee since she was three years old.

Now joint disorganised. Length of right femur, measured from antero-superior spine to lower border of patella 2·5 cm. more than left; length of right fibula 1·25 cm. more than left.

Case 2.—Female, æt. 18. St. Thomas's Hospital, 1875. No note made of extent or duration of the disease. No difference in the lengths of the bones.

Case 3.—Wm. Boswothie, æt. 13. St. Thomas's Hospital, 1875. Disease of right knee four years. From antero-superior spine to lower edge of patella equal. Length of right tibia, 2·5 cm. less than left.

Case 4.—Alf. Walker, æt. 8. St. Thomas's Hospital, 1875. Disease of right knee six years; now chronic. From antero-superior spine to patella, right ·6 cm. more than left. Length of tibia, right ·9 c.m. more than left, but the right limb was rather atrophied, and the right foot shorter than left.

Case 5.—Frank Smith, æt. 9. St. Thomas's Hospital, 1875. Disease of left knee five years; now apparently sound. From antero-superior spine to patella on affected side 2·2 cm. more than on other side. Length of tibia to patella on affected side ·6 cm. more than on other side. But the circumference of the left thigh was 2·5 cm. less than right, the calf ·6 less, and the foot ·6 less in length than its fellow.

Case 6.—Maud White, æt. 17. St. Thomas's Hospital, 1875. Disease of knee-joint, of spontaneous origin, one year. Measurements equal. Excised subsequently, and disease found to be synovial, involving the ends of the bones secondarily.

Case 7.—Charlotte Andrews, æt. 28. St. Thomas's Hospital, 1875. Disease of left knee seven years; origin spontaneous. Measurements equal. Excised subsequently. Disease of surface of tibia and femur.

Case 8.—Stephen Amley, æt. 9. St. Thomas's Hospital, 1875. Disease of left knee five years. Measurement of femur on affected side 2·5 cm. longer than other. Fibulæ equal, but the foot of the affected side was 1·25 cm. shorter than the other, the calf 1·25 cm., and the thigh 2·5 cm. less in circumference.

Case 9.—George Rickets, æt. 13. St. Thomas's Hospital, 1876. Disease of left knee six years; spontaneous. From antero-superior spine to patella on affected side, 2·5 cm. more than other side. Fibulæ equal. Excised subsequently. Parts examined showed the femur to be almost entirely the seat of disease. Acute congestion of the bone, not opposite to the tibial articular surface, but more deeply along line of epiphysis, and especially opposite the patellar surface. Acute destruction of cartilage everywhere except opposite to the tibial area.

Case 10.—James Walder, æt. 8. St. Thomas's Hospital. Disease of right knee six years; spontaneous in origin. From antero-superior spine to patella, diseased side, ·75 cm. more than other side. Tibiæ and fibulæ equal.

Case 11.—Herbert Renton, æt. 8½. Disease of left knee three years; origin from injury to the femur. From antero-superior spine to internal malleolus, diseased side, 1·25 cm. more than other side. Tibiæ and fibulæ equal.

Case 12.—Ada Goldfinch, æt. 10. Disease of left knee four years; spontaneous origin. From antero-superior spine to patella on affected side, 2·5 cm. more than other side. Tibiæ and fibulæ equal.

Case 13.—Agnes Davis, æt. 6. Disease of right knee four years. From antero-superior spine to internal malleolus on affected side, 3· c.m. longer. In this case the record I have does not give the difference in length of the separate bones and is therefore nearly useless for my purpose. But it is a record of the difference in total length of the limb as the effect of disease, and I have therefore retained it.

Case 14.—Maria Martin, æt. 14. Disease of three years' standing. Measurements apparently equal, but difficulty to ensure, owing to the limb being bent.

Case 15.—Wm. A. Williams, æt. 11. 1876. Disease of knee three years; spontaneous; apparently synovial. Measurements equal.

Case 16.—Sarah Harris, æt. 13. 1876. Duration of disease not noted. Disease of right knee. Antero-superior spine to tibia or fibula equal. Tibia on affected side 1·6 cm. less than on healthy side. Patella enlarged in all directions, about 1·25 cm. in each diameter.

Case 17.—Arthur Sear, æt. 9. St. Thomas's Hospital, 1876. Disease of left knee-joint three years; diagnosed to be a case of necrosis. From antero-superior spine to tibia on affected side 3·1 cm. longer than on healthy side. Tibia on affected side 1·25 cm. shorter than on healthy side.

In this curious case, which finds a parallel in Cases 22 and 24, there appears to have been an arrest in the growth of the tibia with elongation of the femur. The patella in this case, as in 16, 18, and 19, was enlarged perceptibly.

Case 18.—Frank Manners, æt. 12. St. Thomas's Hospital, 1877. Disease of right knee nine years; now subacute. From antero-superior spine to tibia on affected side 1·25 cm. longer than on healthy side. Tibiæ and fibulæ equal. Patella enlarged apparently about ·6 cm. in two diameters.

Case 19.—Emma Cannon, æt. 10. St. Thomas's Hospital, 1877. Disease of right knee five years. From antero-superior spine to tibia on affected side ·9 cm. longer. Tibiæ equal.

Case 20.—Wm. Stopps, æt. 14. Margate Infirmary, 1877. Disease of right knee reported to have been existing only one year. Much thickening in the lower half of femur. Small sequestra escaping occasionally. Patella not fixed, but cannot bend knee. From antero-superior spine to tibia on

affected side 6·6 cm. shorter. Tibia on affected side ·6 cm. longer.

Case 21.—Robert Parfit, æt. 25. Margate Infirmary, 1877. Disease of right knee two years. Disease of spine. Right arm amputated. Measurements equal.

Case 22.—Ellen Chuter, æt. 15. Margate Infirmary, 1877. Disease of left knee rather more than one year, probably arising in bone. Patella fixed and painful on pressure. From antero-superior spine to tibia on affected side 2·5 cm. longer. Tibia and fibula on affected side 1·25 cm. shorter, but the foot on affected side was ·6 cm. shorter than its fellow.

Case 23.—Adelaide Green, æt. 11. Margate Infirmary, 1877. Disease of right knee five years. Patella not fixed. From antero-superior spine to tibia equal on both sides. Tibia on affected side 1·6 cm. longer than other.

Case 24.—Kate Hutchinson, æt. 14. St. Thomas's Hospital. Disease of right knee since she was four years old, attributed to injury. Family history of phthisis. From antero-superior spine to patella on affected side 2·0 cm. longer. Tibia on affected side 2·0 cm. shorter. Other measurements taken to ensure accuracy, and found to agree with the foregoing.

Case 25.—Agnes Davis, æt. 8. St. Thomas's Hospital, 1878. Disease of left knee three years. From antero-superior spine to tibia on affected side 2·5 cm. longer. Tibiæ and fibulæ equal. Excised subsequently, and showing on examination deep ulceration of the cartilaginous surface of the patella with corresponding disease on external condyle of femur. No disease on inner condyle or on tibia.

The cases may be conveniently arranged in a tabular form.

	Femur of diseased limb.	Tibia of diseased limb.	
	centimètres.	centimètres.	
Case 1	+2·5	+1·25	
2	=	=	
3	=	−2·5	
4	+ ·6	+ ·9	
5	+2·2	+ ·6	
6	=	=	Excised; disease essentially synovial.
7	=	=	„ necrosis in femur and tibia.
8	+2·5	=	
9	+2·5	=	„ disease essentially in femur.
10	+ ·75	=	
11	+1·25	=	
12	+2·5	=	
13	...	...	+3·0 for the whole limb.
14	=	=	
15	=	=	
16	=	−1·6	Patella enlarged.
17	+3·1	−1·25	Ditto.
18	+1·25	=	Ditto.
19	+ ·9	=	Ditto.
20	−6·6	+ ·6	
21	=	=	
22	+2·5	−1·25	
23	=	−1·6	
24	+2·0	−2·0	
25	+2·5	=	Excised; disease of femur and patella.

The above cases have been examined as they came under notice, and may, therefore, be taken to represent average hospital cases of old-standing knee-joint disease in growing subjects. From a careful study of these it would appear that in a large proportion—as much as 76 per cent—some modification in the length of the limb is found. In 14, or 56 per cent., there was elongation; in 4, or 16 per cent., there was shortening; and in one there was no difference in the total length, but the femur was lengthened 2 cm. and the tibia equally diminished in length, compared with its fellow. In 6, or 24 per cent., there was no abnormality as to length, but as 2 of these cases were twenty-one and twenty-three years of age respectively at the time of the commencement of the disease they might be fairly excluded.

Besides the frequency with which some modification in the growth of the limb occurs in young subjects, some other points of importance present themselves as a result of this inquiry. The femur is much oftener the seat of disease than

the tibia, and far more frequently is elongated than shortened relatively. This occurred in 14 out of 18 cases, or 77 per cent. of the "lengthened" limbs, and 56 per cent. of the total number of cases.

That the femur should be the seat of greatest change in the class of cases here considered is not surprising when one takes into consideration its greater liability to injury from external violence, its large size and slight covering at many points, and especially the fact of its possessing so large a mass of epiphysis, and so rapidly growing an area. When, too, disease extends from the patella it is the femur, just by its quickly growing part, which is most liable to participate in the disease. What wonder, therefore, that in four out of five cases in which the patella indicated that it was the subject of disease the femur was found to be elongated, and the tibia not.

But if the femur is so often the seat of disease—for whether the elongation be the evidence or the result of disease does not materially signify—what is the concurrent condition of the tibia must be a question of interest and importance. As a matter of fact, the tibia was lengthened in only 4 out of the 25 cases, so that this condition was comparatively rare. But these 4 cases show that the increased length of the tibia, where it did occur, was accompanied by still greater lengthening of the femur in 2 cases, and nearly equal increase in a third.

When the femur was elongated it most commonly happened that the tibia retained its normal dimensions. This occurred in 8 cases out of 14. But it was not uncommon for the tibia to be diminished, while the femur was increased (3 cases); and, on the other hand, the tibia might be enlarged (3 cases). Some of the cases were rather remarkable, and I would call attention to Cases 18, 22, and 24. In Case 24 the increase in the length of the femur was exactly counterbalanced by the diminution of the tibia.

I am afraid it would be difficult to lay down any rules for these differences, but it is pathologically possible that increased vascularity of a part may be attended by either increased or diminished vascularity of a neighbouring part, or it may not modify it at all. So that either of the three conditions of increased, diminished, or normal growth in the tibia, may attend such disease in the femur as leads to its abnormal

increase of length. But, except by continuity, I do not think much influence in this respect would be looked for; for, much as the epiphyses are supplied with blood from the large vessels directly entering their outer surfaces, the addition to the length of the bone is much more active at the end of the shaft, and to this the large medullary artery mainly contributes, and this, in its origin, is far removed from the inflammatory area. Granting, therefore, that some active disease began in the end of a femur from some cause, and by its chronic character gave rise to increased vascularity and growth along the line of junction of shaft and epiphysis in that bone, it might, I think, be fairly assumed that similar increased vascularity and growth along the junction line of shaft and epiphysis of the tibia would not occur until the disease had extended deeply into that bone from the joint surface, and that would not be early in the progress of the case.

But disease so beginning in the femur may and does give rise to glandular irritation, and to swelling of the soft parts; and the more chronic the case the greater the induration of popliteal glands, and the greater the liability to interference with the circulation into the limb below. Here may, in great measure, be explained the fact of general atrophy of the limb below the knee, while the femur is lengthened, as in Case 22. I am sorry that I have note of only four cases in which I compared the feet (4, 5, 8, and 22), but these serve to show that even with a lengthened tibia and femur the foot may be undeveloped, no doubt in part by disuse. These considerations negative the careless use of the term "hypertrophy of the limb." There may be lengthening of various bones, but there is no hypertrophy of the limb in these cases.

How far the conditions here noticed are permanent I cannot say. But bone being so much less liable to change than other tissues it appears probable that the increase or diminution of length would be permanent if found after the age when the epiphyses may be expected to join. If found in young and growing subjects would not the question of permanency depend upon the removal or non-removal of the cause of the abnormal length? Would not, therefore, treatment of the disease give the best prospect of return to normal conditions? With the usual lengthening especially this might be expected,

and I would hazard the conjecture that such lengthening may be commonly only temporary in young subjects, and, therefore, not found in adults who have been sufferers from chronic knee-joint disease in early life. This is, however, only a surmise, for I have no means of examining into such questions properly.

What light do the cases in which excision was subsequently performed throw upon the subject? These cases are four in number (6, 7, 9, and 25). In two of these there was no increase or diminution in the length of either femur or tibia. In one of these two the disease was almost entirely synovial; in the other the bones were implicated on their surfaces. In the two other cases there was a peculiar similarity to one another in the pathological conditions. In each there was lengthening of the femur to the extent of 2·5 centimètres, and the tibia was not abnormal in length. In each it was found that the disease affected the femur with peculiar exclusiveness. In Case 9 the "femur was almost entirely the seat of disease; there was acute congestion of the bone, not opposite to the tibial articular surface, but more deeply along the line of the epiphysis, and especially opposite the patellar surface, and there was acute destruction of the articular cartilage (of the femur) everywhere except opposite the tibial areas." In Case 25 there was "deep ulceration of the cartilaginous surface of the patella, with corresponding disease on the external condyle of the femur; no disease on the inner condyle or on the tibia."

These four cases are perhaps the best answer to the question which must be put: Of what value in regard to diagnosis are the facts which have been here pointed out? Can the locality or character of the disease be in any degree determined by the careful measurement of the bones? To this question I think the answer must be decidedly "Yes," though a larger series of observations is still needed, and especially of cases where the measurements will be subjected to the test of pathological observation, by subsequent excision of the joint or amputation.

How far the age of the patient and the duration of the disease affect the tendency of the bones to this modification in their growth in the presence of knee-joint disease these

observations are not sufficient to show. Nearly all the cases were under eighteen years of age. Two only exceeded it (7 and 21), and these I left in because the time at which the disease was reported to have begun might have been before the epiphyses had joined, but in neither case had any modification in the length of the limbs occurred, so that their admission in the list is of doubtful value. The extent of the disease is only to be accurately determined by examination of the parts after removal, and, so far as the cases above given show, the extent and nature of the disease would appear to be the key to the whole question, whereas the duration of the disease in itself does not materially assist the inquiry.

The enlargement of the patella noticed in some of the cases (16, 17, 18, 19) is worthy of a passing reference, and points to the value of measurements here, but the subject is beyond the original scope of this paper and is fraught with considerable difficulty, owing to the absence of distinctness of outline to the bone, and the notes taken are too few to be of any practical value in themselves.

It will, I think, be obvious that if such changes as have been here described occur in the knee-joint, they must occur in other joints also, and that careful measurements may assist in determining the same questions of locality and character of joint disease as have been inquired into in the case of the knee.

The conclusions which I would submit as a result of these observations are the following:

1. Long-standing disease of the knee-joint in young and quickly growing subjects is frequently attended with some modification in the length of the limb.

2. Abnormal lengthening of either femur or tibia is more commonly found than deficiency in length of these bones.

3. The femur is most usually the seat of this abnormal increase in length.

4. Abnormal increase in length of one long bone at the knee-joint may be attended with some or no abnormality in the length of the other bone.

5. It is more usual to find only one bone affected.

6. The amount of lengthening of the femur varied from ·6 to 3·1 cm., and the average in the cases where lengthening

was found was nearly 2 cm. or 1·1 cm. in the total number of cases examined.

7. Marked abnormality in the length of a bone must be looked upon as presumptive evidence of disease or the effect of disease in that bone in this class of cases.

8. When marked increase in length has taken place in one bone that bone is probably the seat of active inflammatory disease along the epiphysial line. Where the distal bone is diminished in length comparatively, such diminution may be due to destructive disease in the bone itself, or to interference in its nutrition, as a consequence of disease in the proximal bone or the joint.

9. Where after long-standing knee-joint disease in young subjects no abnormality in length is found it may be anticipated that the disease has been synovial rather than bony.

10. How far these abnormalities are permanent is only a matter of conjecture at present.

11. Careful measurements of the bones may be of great service in localising and indicating the character of chronic joint disease in young and growing subjects.

ANALYSIS

OF

SIXTY-TWO CASES OF ENTERIC FEVER

TREATED IN ST. THOMAS'S HOSPITAL IN THE AUTUMN OF 1879 AND THE ENSUING WINTER.

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In the eight months commencing August 1st, 1879, and ending March 31st, 1880, there were admitted into St. Thomas's Hospital 62 cases of enteric fever, which were distributed amongst the physicians as follows:—To Dr. Bristowe 18, to Dr. Stone 12, to Dr. Ord 16, to Dr. Harley 16.

Table I.—*Shows the admissions for each month.*

August	8
September . . .	3
October	18
November . . .	18
December . . .	3
January . . .	4
February . . .	2
March	6
	62

The sudden fall in the number of patients admitted during December is worthy of note, the more that the November numbers were, contrary to our previous experience, as high as those of October. A more protracted period of frequency of attacks has therefore been followed by a rarity almost amounting to extinction.

Sex.—Thirty-eight of the patients were males; twenty-four females. The extremes of age were 2 years and 50 years respectively, both in females.

TABLE II.—*Ages of patients.*

Under 5 years.	5 to 10 years.	10 to 15 years.	15 to 20 years.	20 to 30 years.	30 to 40 years.	40 to 50 years.	
2	8	14	18	15	2	3	=62.

It appears from this table that only five (5), or one twelfth, of the cases occurred in persons over 30 years of age; forty-seven (47) in persons between 10 and 30 years, and ten (10) in children under 10 years.

Deaths.—The fatal cases were eight. Curiously the same number as in our last year's series of cases, and also in the year before. But the death-rate is not so favourable, amounting this year to 12·9 per cent., or 1 in $7\frac{3}{4}$ cases, as against 11·1 per cent., or 1 in 9 cases, last year, and 13·3 per cent., or 1 in $7\frac{1}{2}$ cases, the year before.

The ages of the fatal cases were 22, 17, 32, 29, 26, 45, 16, 21 years severally, five being males, three females.

In three cases the death was due to the lesions characteristic of the fever; one patient dying of exhaustion in a second relapse (or third attack) some days after attaining a temperature of 107·2°; two dying of perforation. But in one of these other complications, bronchitis and albuminuria, existed. In the remaining five cases more or less albuminuria was noted; and in all, bronchitis or broncho-pneumonia formed a part of the fatal symptoms.

This year, again, there has been a general definiteness in the symptoms marking the date of onset in a great majority. In as many as fifty-two cases, the day of the commencement

of the illness was fairly indicated. In other words, the experience of this and the two preceding years does not favour the idea that in enteric fever sudden development of the febrile state is followed by fever of great severity, or that it constitutes an unfavorable prognostic, since the type of fever has not been severe.

We may now proceed to an analysis of the fifty-two cases.

TABLE III.—*Duration of illness previous to admission.*

In	9	cases,	5 days and under.
,,	27	,,	6 to 10 days.
,,	8	,,	11 ,, 15 ,,
,,	2	,,	16 ,, 20 ,,
,,	6	,,	21 ,, 30 ,,
	52		

Total duration of illness.—The termination of the attack in forty-six of the above cases is here stated in a tabular form, the commencement of convalescence being held to date from the time when on two successive days the temperature was normal.

TABLE IV.—*Duration of febrile state in 46 cases of recovery; stated in weeks.*

Recovery in 2nd week	. 1	Recovery in 7th week	. 11
,, 3rd ,,	. 3	,, 8th ,,	. 2
,, 4th ,,	. 8	,, 9th ,,	. 1
,, 5th ,,	. 9	,, 11th ,,	. 1
,, 6th ,,	. 9	,, 12th ,,	. 1

Only the forty-six cases of recovery in which the date of convalescence is known are here used, the fatal cases being omitted from this table. The five cases in which the table shows recovery to have delayed into the eighth or beyond the eighth week were all, save one (Case 28), plainly marked relapses. This patient excepted had high temperature up to the eightieth day, and presented no inflammation of lungs or of other organ to account for it. As a case of hyperpyrexia treated with graduated baths, it is reviewed at length further on.

In six out of the eight fatal cases the commencement of the fever was well ascertained. We find that death happened as early as the sixteenth day (earliest), and as late as the forty-seventh day (latest). The date of death in the other two is stated approximately. Thus death occurred

on the	13th (about),	16th	24th	26th	34th	40th	47th	52nd[1] (about)	day of fever.
and on the	6th	12th	16th	18th	8th	16th	45th	46th	day of residence.

The average length of stay in the hospital in the whole 62 cases was just over seven weeks, 9 patients being discharged in the sixth, 9 in the seventh, and 8 in the eighth week. The extremes were two, who were under treatment twelve days only, and one who stayed in the hospital 104 days, a marked relapse occurring in the eighth week, and continuing three weeks.

Eruption was present at the time of admission in 39 cases, but 7 of these, in which there was some doubt as to the date of commencement of fever, are not available for classification. Two considerable variations from the average period of appearance of the rash are to be noted. In one case a typical enteric rash was noticed on the fourth day of fever, and lasted ten days; in the other, a fatal case, the eruption was present on the twenty-seventh day, lasting six days afterwards. This patient having been admitted after she had been ill at home twenty-six (26) days was probably passing through a second attack or first relapse.

Table V shows the day of appearance and the duration of the eruption in the 32 cases in which the date of access of fever was ascertained.

In 1 case on the 4th day, lasting 10 days. There were no spots observed in the subsequent relapse, which was fatal.
„ 1 „ 5th „ „ 26 days. No relapse.
„ 2 cases on the 6th „ „ 1 and 3 days respectively.
„ 2 „ 7th „ „ 1 „ 8 „ „
„ 5 „ 8th „ „ 1, 1, 4, 14, and 31 days respectively. This last was not a relapse.

[1] This was undoubtedly a case of second relapse, which ended fatally.

In 4 cases on the	9th	day,	lasting	4, 5, and 10 days respectively; and in the 4th case to the 8th, or fatal day.
„ 6	„ 10th	„	„	1, 5, 6, 7, 8, and 15 days respectively.
„ 3	„ 11th	„	„	1, 30, and 59 days respectively, the last two being relapses.
„ 1	„ 12th	„	„	13 days.
„ 1	„ 14th	„	„	1 day.
„ 2	„ 15th	„	„	6 and 9 days respectively.
„ 1	„ 18th	„	„	1 day.
„ 1	„ 19th	„	„	3 days.
„ 1	„ 26th	„	„	7 days. Probably a relapse.
„ 1	„ 27th	„	„	6 „ „ „
32				

The rash was developed in 11 cases AFTER admission. In one of these, however, the date of the fever was uncertain, it is therefore omitted from the digest of such cases. The eruption appeared after admission in—

2 cases on the	9th	day,	lasting	3 and 19 days respectively.
1	„ 10th	„	„	2 days.
1	„ 11th	„	„	1 day.
1	„ 12th	„	„	2 days. In this case there was marked cerebral maculæ and great drowsiness.
1	„ 13th	„	„	1 day. Marked "doubtful."
1	„ 19th	„	„	5 days.
1	„ 24th	„	„	1 day. Not a relapse.
1	„ 26th	„	„	1 „ „ „
1	„ 29th	„	„	1 „ „ „
10				

On the other hand, in 12 cases, or 19·3 per cent., no rash appeared at any period of residence, though always carefully searched for in every patient. This average, although rather lower than Dr. Muchison's,[1] probably represents approximately the number of cases in any given series in which no rash is present.

The absence of rash in so many cases might at first sight be plausibly attributed to the lateness of the period of admission in a certain proportion of instances, the patients having passed the days in which rash should have been present. Such an explanation, however, cannot be entertained after an inspection of our figures, for we find that as many as 5 out of the 12 were admitted during the first week of the fever,

[1] Murchison, 'Continued Fevers,' p. 511.

and the remaining 7 at dates varying from the eighth to the fifteenth day.

The absence of rash was equally divided between the two sexes.

Athough the number of cases in this year's 'Report' alone is not sufficient to found any exact data, it would yet appear from them that absence of spots was observed in mild rather than in severe cases. Thus only 3 of the cases in which no rash was found were severe, 1 of them being fatal; in the remaining 9 the attack was decidedly mild. The patients thus showing no rash were young; their ages ranged from two to thirty-two years, and 7 of them were under fourteen years.

In Case 12 cerebral maculæ were observed, together with the ordinary typhoid spots, the patient being in a very drowsy irritable condition till the twenty-seventh day.

In Case 22 also, the tâche cerebrale was observed during the fourth week, but with no attendant delirium or cerebral disturbance. Perspirations, especially during sleep, were very common, sometimes profuse. Although they were most frequent towards the end of the fever, a critical sweat, followed by lysis, was never observed.

Temperature.—In the table on the next and following pages the highest evening and the lowest morning temperatures, in each case with their dates, are stated, also the average morning and evening temperatures, with a note of their variations, making a record of the whole course of fever subsequent to admission.

It will be seen that a very high temperature (107·2°) for enteric fever was recorded in Case 52. It occurred on the forty-fifth day of fever, during an undoubted second relapse. The patient was under Dr. Ord's care, who treated the hyperpyrexia with graduated baths (two). Although the temperature was reduced, the patient sank afterwards on the fifty-second day from diarrhœa and exhaustion.

In three other cases (Nos. 1, 50, 53) the temperature reached or exceeded 106°, two of these terminating fatally. The prognosis in a patient with a temperature record of 106° is undoubtedly grave, according to all authors, an experience confirmed by our reports of the last three years. In the

1877-78 'Report,'[1] a temperature of 106° or upwards was observed in two cases; both fatal. In 1878-79,[2] two cases had a temperature of 106°; both terminating in death. This year we find four (4) patients whose temperature reached or exceeded 106°, with three deaths. Furthermore during last autumn's epidemic eighteen (18) cases had a fever heat of between 105° and 106°, amongst them being four deaths. The temperatures of these four fatal cases were 105°, 105·4°, 105·4°, 105·8° respectively. Every fraction of a degree in heat above 105·4° marks a high and increasing ratio of peril till 106°, when death becomes the rule, and recovery the exception, our observations herein according with the calculations of Wunderlich, who fixes 106·7° as the fatal line in enteric fever.

There are, moreover, grounds for the inference that hyperpyrexia does not necessarily involve immediate danger to the patient, many surviving a number of days after presenting high temperature; but that it may be merely prophetic of the fatal issue, which may be postponed to a comparatively distant period, even into a relapse.

TABLE VII.—*Of fatal cases, showing their highest temperatures, the dates of such, and the dates of death.*

Case.	Highest temperature.	Date.	Date of death.
1	106·4	5th day	47th day, during a relapse.
7	105·4	20th ,,	26th ,,
17	105·8	16th ,,	16th ,,
51	105·	25th ,,	40th ,,
52	107·2	45th ,, (about)	52nd ,, (about) during a 2nd relapse.
53	106·2	31st ,,	34th ,,
59	105·4	7th ,, (about)	13th ,, (about).
60	104·9	10th ,,	24th ,,

Besides the above, it will be seen that in twenty-six cases, or over a third, the temperature rose to 104°, or between 104° and 105°; in seven cases to 103° and below 104°; so that in fifty-two out of sixty-two the temperature rose to 103° or beyond it.

[1] 'St. Thomas's Hospital Reports,' New Series, vol. viii, p. 96.

[2] Ibid., ibid., vol. ix, p. 218.

Case.	Highest evening temperature.	Lowest morning temperature.	1st week, average.			2nd week, average.			3rd week, average.			4th week, average.			5th week, average.		
			M.[1]	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.
1	106·4, 5th day	97·0, 36th day	104·7	106·2	1·5	103·2	104·7	1·5	100·9	104·0	3·1	99·4	102·6	3·2	98·3	98·8	·5
2	104·4, 30th, 5th relapse	96·0, 16th	...	...	...	98·1	99·4	1·3	96·6	97·5	·9	98·6	100·0	1·4	101·1	103·7	2·6
3	104·8, 17th	97·0, 47th	...	...	...	...	...	...	103·5	101·6	1·9	99·5	102·3	2·8	98·3	100·0	1·7
4	102·8, day of admission, 8th	96·0, 29th	...	...	...	98·9	102·1	3·2	98·1	100·8	2·7	97·6	98·9	1·3	98·3	97·8	·5
5	102·3, day of admission, 21st	95·6, 41st	...	...	..	...	...	...	...	...	...	98·8	99·9	1·1	97·7	96·8	·9
6	103·6, day of admission, 10th	96·4, 21st	...	...		100·9	103·1	2·2	98·7	101·0	2·3	97·8	98·8	1·0	97·6	97·8	·2
7	105·4, 20th	97·4, 26th, day of death	...	...	...	102·8	104·3	1·5	101·5	104·0	2·5	100·9	102·8	1·9	...	...	..
8	105·2, 11th	96·8, 42nd	...	...	...	102·2	104·3	2·1	100·2	102·9	2·7	98·4	101·5	3·1	98·3	100·2	1·9
9	104·8, 21st	96·8, 32nd	...	...	...	...	...	...	102·1	104·3	2·2	99·5	101·7	2·2	97·1	98·8	1·7
10	105·2, 17th	97·0, 41st	...	...	...	...	...	...	102·8	104·5	1·7	101·2	103·3	2·1	99·2	99·8	·6
11	104·0, 4th	97·0, 11th	100·0	102·2	2·2	98·5	98·8	·3	97·4	97·3	·1	98·2	97·9	·3	...	...	..
12	105·2, day of admission, 9th	95·0, 37th	...	...	...	101·4	103·7	2·3	99·3	101·5	2·2	97·1	97·5	·4	96·9	97·3	·4
13	104·4, day of admission, 11th	96·5, 44th	...	...	...	99·2	102·7	3·5	98·9	102·2	3·3	97·9	100·3	2·4	97·5	97·9	·4
14	103·6, 16th	96·0, 24th	...	...	...	98·6	101·7	3·1	98·3	101·4	3·1	97·2	99·4	2·2	97·2	98·4	1·2
15	104·8, 37th	96·4, 32nd	...	...	...	100·3	103·4	3·1	98·3	101·2	2·9	97·3	97·8	·5	97·8	98·4	·6
16	104·4. 12th	96·2, 20th	...	...	...	101·6	103·4	1·8	97·0	98·1	1·1	97·5	97·4	·1	97·5	98·1	·6
17	105·8, 16th	98·0, 13th	103·0	103·9	·9	100·2	103·0	2·8	102·5	104·5	2·0	...	...	...	...	...	..
18	105·2, day of admission, 8th	96·4, 28th	...	...	...	103·0	104·9	1·9	101·6	103·9	2·3	98·0	101·7	3·7	97·5	96·9	·6
19	104·6, day of admission, 9th	97·1, 17th	...	...	...	101·9	104·2	2·3	97·7	100·1	2·4	99·5	102·4	2·9	98·8	101·3	2·5
20	105·4, day of admission, 15th, about	95·2, 56th	...	...	...	...	...	...	102·2	104·5	2·3	97·8	100·6	2·8	99·1	102·7	3·6

[1] M. Morning. E. Evening. V. Variations.

6th week, evenings.			7th week, mornings.			8th week, evenings.			9th week, mornings.			10th week, evenings.			11th week, mornings.			Remarks.
M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	
0·1	102·4	2·3	102·4	104·4	2·0	...	...	..	...	...	...	...	...		...	...	...	Relapse in 6th week; death on 48th day of fever; no P.M. allowed.
9·8	101·9	2·1	...	...	...	...	...	...	...	..	...	...	...	...	...	...	..	Relapse commencing on the 26th day.
8·0	99·0	1·0	97·4	97·6	·2													
7·2	97·9	·7																
7·4	97·5	·1	97·4	97·5	·1													
..		...	..	...	..	...	...	...	...	...	.	...	.	...	...	...	.	Death on 26th day; no perforation found P.M. to account for low temp. on day of death; hyperpyrexia treated by cold pack.
0·1	101·1	2·0	97·6	99·5	1·9	98·8	100·2	1·4										
8·2	99·1	·9	97·5	98·4	·9													
7·8	98·3	·5	97·2	98·8	1·6	97·8	97·8	..	...	..	..	...		...	...	...	.	Recrudescence in 6th and 7th weeks, otherwise the temperatures were much below normal.
...	...	...	...	...	...	..	...	..	..	...	...	...	...		.	.	...	Morning temp. in 3rd and 4th weeks below evening.
96·8	97·3	·5																
97·9	98·2	·3	97·8	98·8	1·0	.	...	..	...	...	..	...	...	...	.			Recrudescence in 7th week, lasting 2 days, and not materially affecting the averages.
97·2	97·9	·7																
98·9	100·3	1·4																
...	...	...	...	..	...	..	...	...	..	...	..	...	...	...	...	.	..	The averages for 1st week taken from 3 days observations only; death on 16th day; P.M. showed bronchio-pneumonia and collapse of lung.
...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	.	.	Very low temp. in 6th week, the p.m. being lower than a.m.
98·1	99·0	·9																
02·2	104·1	1·9	99·6	102·4	2·8	97·1	98·5	1·4	97·4	98·8	1·4	98·1	98·0	·1	98·4	98·3	·1	Relapse in 5th week.

Case.	Highest evening temperature.	Lowest morning temperature.	1st week, average.			2nd week, average.			3rd week, average.			4th week, average.			5th week, average.		
			M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.
21	101·3, day of admission, 13th	96·2, 22nd	...	...	...	...	...	...	99·0	103·2	1·2	97·3	100·2	2·9	97·6	99·6	2
22	104·2, day of admission, 26th	96·0, 38th	...	...	...	...	...	...	...	...	...	...	...	...	101·8	103·4	1
23	104·2, day of admission, 10th	96·4, 24th	...	...	...	101·3	103·1	1·8	97·7	99·2	1·5	98·0	97·9	·1	98·1	98·7	
24	101·4, day of admission, 15th	97·0, 19th	...	...	...	...	...	...	98·0	99·3	1·3						
25	105·0, 26th	97·0, 35th	...	...	...	...	...	...	...	...	...	101·2	103·3	2·1	97·9	100·6	2
26	104·8, 9th	97·0, 19th	...	...	...	100·4	103·3	2·9	98·2	101·5	3·3	97·7	98·8	1·1	98·0	99·2	1
27	104·8, 9th	96·2, 43rd	...	...	...	103·3	104·3	1·0	101·6	103·8	2·2	98·1	101·3	3·2	97·3	99·9	2
28	105·4, 25th	97·2, 83rd	...	...	...	...	...	...	102·4	104·4	2·0	101·8	104·0	2·2	100·8	102·6	1
29	105·0, 11th	97·2, 29th	103·5	104·8	1·3	102·5	104·2	1·7	99·2	102·5	3·3	98·6	100·9	2·3	98·2	98·4	
30	105·2, day of admission, 7th	96·0, 20th	...	...	...	101·9	103·3	1·4	98·0	100·0	2·0	96·5	96·3	·2			
31	103·8, day of admission, 14th	97·0, 26th	...	...	...	...	...	...	100·6	103·0	2·4	97·5	99·8	2·3	98·0	98·7	
32	104·2, 12th	96·4, 67th	...	...	...	101·1	103·9	2·8	100·7	103·5	2·8	100·7	103·3	2·6	100·4	102·9	2
33	104·2, day of admission, 5th	98·4, 14th	99·8	102·5	2·7	98·6	98·9	·3	98·5	98·3	·2						
34	105·0, day of admission, 9th	96·2, 19th	...	...	...	100·2	102·5	2·3	97·2	97·5	·3	97·4	97·2	·2			
35	100·6, day of admission, 16th	97·2, 21st	...	...	...	...	...	...	97·8	98·8	1·0	98·5	99·0	·5			
36	103·4, day of admission, 18th	96·2, 33rd	...	...	...	...	...	...	98·3	101·8	3·5	98·0	98·5	·5	96·9	97·5	
37	103·6, 13th	96·8, 28th	...	...	...	100·0	103·1	3·1	97·9	100·6	2·7	98·1	98·9	·8	98·1	98·3	
38	104·4, 14th	95·8, 19th	...	...	...	103·0	104·0	1·0	98·7	99·8	1·1	97·6	99·1	1·5	97·5	99·2	
39	104·4, day of recrudescence, 11st	96·2, 46th	...	...	...	98·2	100·5	2·3	98·0	98·7	·7	97·2	97·7	·5	Normal		
40	103·2, day of admission, 13th	96·8, 33rd	...	...	...	99·6	102·8	3·2	98·4	102·2	3·8	97·3	99·4	2·1	97·3	99·3	

6th week, average.			7th week, average.			8th week, average.			9th week, average.			10th week, average.			11th week, average.			Remarks.
.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	
2	98·7	·5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Recrudescence at end of 5th week, lasting 3 days.
6	99·7	1·1	97·6	98·2	·6	98·4	98·4	...	98·6	99·1	·5	99·8	100·7	·9	98·5	98·1	·4	Convalescence occurred in 8th week; complicated with phlebitis during 9th, 10th, and 11th weeks.
·6	98·2	·6																
·2	99·6	2·4	96·9	98·2	1·3	97·7	98·4	·7	98·0	98·5	·5	98·3	98·3	...	97·9	97·8	·1	Convalescence in the 5th week; temp. kept up subsequently by phlebitis.
6	102·5	2·9	99·4	102·6	3·2	100·7	102·5	1·8	98·5	100·7	2·2	98·6	99·9	1·3	...	...	...	5 baths, excellent results; hæmorrhage in 5th week, producing great fall of temp.
.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	This case is probably one admitted during a relapse, as the patient had been under treatment for nearly 6 weeks before admission.
2	99·6	·4	97·8	98·2	·4	99·6	101·1	1·5	102·2	103·8	1·6	98·2	100·2	2·0	97·4	98·1	·7	Relapse in 8th week, lasting to end of 10th.
.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	This patient aborted at the 6th day of fever.
.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	The low temp. (95·8) was not attended with diarrhœa or hæmorrhage.
4	100·1	1·7	96·9	97·8	·9	...	...	...	...	...	...	...	...	...	...	...	...	A sharp recrudescence in 6th week, lasting 3 days.
·8	98·8	1·0	Normal		...	98·1	101·1	3·0	...	..	...	...	...	...	...	...	...	The high temp. in the 8th week was attended with sore throat and congestion of the fauces, ? scarlatinal.

Case.	Highest evening temperature.	Lowest morning temperature.	1st week, average.			2nd week, average.			3rd week, average.			4th week, average.			5th week, average.	
			M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.
41	104·8, 4th	97·6, 15th	102·8	104·3	1·5	98·0	99·2	1·2	98·7	98·3	·4					
42	104·2, 7th	96·4, 16th	101·0	103·6	2·6	99·8	102·8	3·0	97·5	98·7	1·2					
43	105·2, day of admission, 23rd	95·5, 65th	...	...	...	...	...	...	...	...	...	103·1	104·9	1·8	101·4	103·4
44	104·4, 45th, 8th relapse	97·0, 54th, 17th of relapse	...	...	...	...	...	...	...	...	...	99·0	102·0	3·0	98·4	99·4
45	105·0, 11th	96·4, 52nd, 17th of relapse	...	...	...	101·6	104·2	2·6	100·1	103·5	3·4	97·8	101·6	3·8	98·1	99·5
46	104·2, day of admission, 8th	96·0, 21st	...	...	...	98·4	101·3	2·9	98·0	97·8	·2	97·1	98·1	1·0		
47	103·4, 8th	96·0, 28th	100·4	102·0	1·6	99·1	102·2	3·1	98·4	100·2	1·8	97·1	98·9	1·8	97·8	98·8
48	101·1, day of admission, 21st	96·0, 25th	...	...	...	...	...	...	...	...	...	96·9	99·8	2·9	96·8	97·8
49	99·4, day of admission, 14th	97·6, 18th	...	...	...	...	...	...	98·5	97·6	·9					
50	106·1, 29th	96·2, 32nd	...	...	...	103·0	104·2	1·2	102·7	103·4	·7	99·2	101·9	2·7	97·7	99·3
51	105·0, 25th	97·0, 37th	...	...	...	...	...	...	...	...	...	102·4	103·8	1·4	100·7	102·8
52	107·2, 45th, during a 2nd relapse	99·0, 42nd	...	...	...	100·2	102·0	1·8	101·0	102·9	1·9	101·6	103·4	1·8	102·6	103·8
53	106·2, 31st	99·8, 33rd	...	...	...	...	...	...	...	...	...	103·4	104·0	·6	102·4	104·3
54	105·2, day of admission, 15th	96·0, 34th	...	...	...	...	...	...	102·1	103·9	1·8	100·1	102·9	2·8	98·3	101·6
55	104·7, day of admission, 22nd	97·2, 51st	...	...	...	...	...	...	...	...	...	102·4	103·4	1·2	99·7	101·9
56	104·8, 12th	97·6, 48th	...	...	...	102·6	103·9	1·3	101·0	103·3	2·3	99·3	101·3	2·0	98·9	98·3
57	105·6, 8th	97·6, 34th	102·8	104·5	1·7	102·1	104·5	2·4	100·4	102·9	2·5	99·7	101·1	1·4	98·4	100·2
58	101·2, 11th	95·8, 14th	...	...	...	98·1	99·3	1·2	97·5	98·1	·6	98·3	98·3	...	97·5	98·3
59	105·4, day of admission, 8th, about	100·2, day of death, 13th, about	...	...	...	102·3	104·7	2·4	...	...	...	...	...	...	...	...
60	104·9, 10th	99·8, 23rd	...	...	...	103·4	104·5	1·1	101·3	102·9	1·6	100·7	102·8	2·1	...	...
61	104·2, day of admission, 11th	96·4, 24th	...	...	...	100·3	101·6	1·3	98·2	99·7	1·5	97·3	98·9	1·6	97·9	99·4
62	104·6, 34th, 1st of relapse	95·8, 53rd, 19th of relapse	...	...	...	98·6	100·9	2·3	97·5	97·7	·2	98·1	97·6	·5	99·3	103·8

6th week, average.			7th week, average.			8th week, average.			9th week, average.			10th week, average.			11th week, average.			Remarks.
M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	M.	E.	V.	
98·1	100·3	2·2	98·3	98·7	·4	98·9	100·4	1·5	98·3	98·8	·5	97·5	98·0	·5				
98·6	100·4	1·8	100·9	103·3	2·4	98·3	99·6	1·3	97·4	97·7	·3	97·7	98·6	·9	...	...	...	Relapse in 6th week.
99·5	102·1	2·6	98·7	101·3	2·6	97·1	98·3	1·2	97·9	98·3	·4	...	...	...	...	...	...	Relapse at end of 5th week.
98·5	98·8	·3	...	...	...	99·0	99·1	·1	...	...	...	...	...	...	...	...	...	Recrudescence in 8th week.
97·9	99·1	1·2	98·3	99·3	1·0	97·5	98·3	·8	97·6	97·9	·3							
97·5	98·4	·9	98·5	98·5	...	98·7	98·8	·1	99·1	98·9	·2							
97·3	100·7	3·4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Death on the 40th day; the great variation of temp. in the 6th week is due to the fall denoting perforation.
100·3	102·2	1·9	102·7	104·7	2·0	103·8	105·1	1·3	...	...	...	...	...	...	...	...	...	2 baths on the 46th day; death on the 52nd day after 2nd relapse.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Hyperpyrexia treated with sponging; death on the 34th day.
96·5	97·9	1·4	97·9	100·2	2·3	98·3	99·3	1·0										
98·6	99·9	1·3	98·8	100·2	1·4	97·9	98·7	·8	98·0	98·9	·9							
99·3	98·5	·8	98·3	97·7	·6	...	...	...	...	...	...	...	...	...	. .	...	...	Evening temp. below morning during 5th, 6th, and 7th weeks.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	High temp. subsequently in 6th, 7th, and 8th weeks, due to severe otorrhœa.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Very severe case; death at end of 2nd week; P.M. showed pneumonia.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Fatal case; death on the 24th day, from perforation.
99·9	101·3	1·4	98·5	99·7	1·2	96·9	98·0	1·1	...	...	...	...	...	...	...	...	...	Relapse in 5th week, with hæmorrhage.

The lowest evening temperature was 99·4° in a mild case (No. 49), running its course in twenty-two days.

The actual lowest temperature observation, 95°, occurred in a morning. The patient was a boy aged 9, who had severe diarrhœa the previous day.

The age of the patient is mentioned, as it leads to interesting facts which were just mentioned in last year's report, as regards temperature in typhoid fever.[1] In seventeen children among our cases, of ages varying from 4 years to 16, not only were many individual daily temperatures below normal during convalescence, but actual weekly averages show the same depression, both in the evening as well as in the morning. The depression was generally most notable after a severe attack, or after a relapse. In many of the cases during convalescence there have been marked remissions, but with complete reversal of the fever relations, the morning temperature exceeding the evening by an appreciable amount.

Are such observations to be taken as suggestive of "shock" as one of the effects upon the system of a prolonged fever?

Our figures show the occurrence of the highest temperatures observed to have been on the day of the patient's admission in twenty-seven cases, or 43·5 per cent.

Pulse.—In Case 61, a male, æt. 36, the highest pulse rate was 68, on or about the thirteenth day, the attack being a mild one. The highest pulse (174) occurred in a child of two years. The attack was of moderate severity, it was complicated with marked albuminuria, and the patient recovered.

A pulse rate of 160 or upwards was observed in four cases, including the one just mentioned, of which one was fatal. In none of these four did the date of the highest pulse correspond with that of the highest temperature, although in three of them they were only twenty-four hours apart.

In two cases only, the pulse ranged between 150 and 160, one of them terminating fatally; in six cases the pulse was over 140 and under 150, three of them ending in death; in only three of these eight did the occurrence of highest pulse and temperature approximately coincide.

In twenty-four cases the range was between 120 and 140,

[1] 'St. Thomas's Hospital Reports,' New Series, vol. ix, p. 222.

with three deaths amongst them. A pulse beyond 100 and below 120 is recorded in seventeen cases.

The pulse rose in our eight fatal cases to 120, 132, 138, 140, 144, 144, 158, 162; respectively. The average of highest pulse rates in the whole of the sixty-two cases was but 119. This is not far short of the limit 125, beyond which, as is generally held the pulse rate cannot pass without giving rise to anxiety.

It is interesting to note that the heart's action was quickest in twenty cases, or about a third, on the day of admission.

As regards the quality of the pulse, it is recorded to have been "running" in three cases, two of which were fatal, and dicrotic in five, with one death.

From our observation of cases, and also from the histories of those patients in beds other than Dr. Ord's, impairment or deficiency of the systolic sound over the ventricles was only found in the most severe cases, or the most debilitated subjects: but reduplication of the first at the apex, or second sound at the base, was very frequently present, more especially, as might be expected, in those cases in which lung or kidney complications occurred.

Diarrhœa.—Under this heading the figures of this year's epidemic are interesting. Severe diarrhœa was present in sixteen cases, or 25·8 per cent. Of these, four had "very severe" purging, by which is meant more than seven evacuations a day. Seven out of the eight fatal cases come under this category. Six cases were attended with "not severe" diarrhœa, whilst in nineteen, although there was enough looseness of bowels to constitute diarrhœa, the stools never exceeded three a day.

A much larger number of cases, namely, twenty-one, suffered from constipation throughout the whole time they were under hospital treatment. The prevalence of constipation during the autumnal epidemics of late years has been, indeed, one of the chief reasons for the publication of the reports which we have ventured to make.

If enteric fever always presented in all epidemics the same characters, the annual analysis of the comparatively small number of cases treated in a general hospital would have been a very useless act of supererogation. But now that during successive years we have been able to show that one important

condition has in our experience been regularly reversed, we may feel that we are doing good in establishing the fact, in drawing attention to it, and in discussing the question of the modification of treatment demanded by the new condition. In the report for the winter of 1877 the influence of the distribution of lesions in the alimentary canal has been discussed, with the result of confirming Sir William Jenner's opinion that diarrhœa was more common when the large intestine was involved. This year the examinations made in our eight fatal cases show that the large intestine was decidedly affected in four patients, all of whom had had diarrhœa during life, that it was affected slightly or not at all in three, of whom two had diarrhœa. In the eighth case no post-mortem examination was permitted.

Our cases also indicate some relation between seasonal temperature and constipation. Constipation has been much more frequent in the colder months than in the warmer. We have mentioned that twenty-one cases presented constipation throughout; we may further state that constipation calling for treatment existed at one time or other during the course of the fever in as many as forty-six cases, or 74·2 per cent., and that of twenty-one cases admitted in last November and December, when the range of the thermometer was very low, fourteen suffered from constipation, two only from severe diarrhœa. These twenty-one cases were on the average less severe than the cases admitted earlier.

Our general conclusion is that constipation denotes a milder attack in the epidemic, most probably in consequence of a diminished tendency to the extension of the affection generally, and in particular to the solitary glands of the large intestine. But we have also to suggest, as a matter of great probability, that constipation, the mark of mildness in the epidemic, is a factor in increasing the death rate. We have been struck by the fact that, where constipation has existed during life, the solidified fæcal matters are found at the post-mortem examination, attached with singular firmness to the affected patches of Peyer, and in the process of detachment by the scalpel or a stream of water, they often carry away with them portions of the softened intestinal surface, sometimes a disc out of the intestinal wall. We can see no reason for doubting that this

occurs and proceeds during life, and, therefore, that fresh irritation of the patches or even dangerous lesions may arise whenever, and by whatever means, the bowels are brought to act after a long-continued constipation. In this way, the large proportion of cases of recrudescence and relapse has found for us its explanation; and in this way, also, we believe ourselves able to account in part for the comparatively frequent occurrence of perforation in very mild cases. The treatment which commends itself to us as most suitable in this condition of constipation will be afterwards stated.

Vomiting.—With few exceptions the histories of the onset of fever include vomiting as a marked and prominent feature. But three only presented it after admission to such a degree as to constitute a complication. Of these three, two died. In both these fatal cases severe and urgent vomiting came on five days before death, and very probably produced perforation in one of them. Unfortunately, a post-mortem examination could not be obtained.

Abdomen.—In every case except two, symptoms were present pointing to the belly as the seat of lesion. Pain at one period or another of the fever was the most general sign, its absence being recorded in nine cases only. The most frequent seat of pain was in the right iliac fossa, twenty-six cases; in three of these, however, it was observed only during a relapse. In four fatal cases the pain was generally distributed all over the abdomen. The absence of distension is recorded in eleven cases; its presence was very general, notably after perforation or associated with peritonitis. "Gurgling" on pressure was noted in twenty-one cases, its absence in fourteen. The spleen was enlarged or painful in twenty-one patients, actual absence of splenic symptoms is noted in six only, The ages of the four oldest who had manifest splenic enlargement were 24, 25, 25, and 36 years respectively; they were all males. In none of the other seventeen did the ages exceed eighteen years.

Tongue.—The varying conditions of this organ have been carefully noted. In the early stages it was generally coated with a more or less thick white or yellowish fur, but as the disease progressed the fur cleared off, and the tongue became unusually red and smooth; this was in an ordinary favourable

attack. The accepted relation of dryness and brownness of the tongue, with severity of the fever, is well illustrated by our cases. Out of twenty-two patients who had a highest temperature of or exceeding 105°, all but four had dry brown tongues; and, further, this state was recorded in all our eight fatal cases. We find, also, that out of twenty-two patients who had diarrhœa at all approaching to severity, eighteen had a dry surface of tongue, and especially at those periods when diarrhœa was most urgent or prolonged.

Transverse fissures existed in seventeen cases, of which three were fatal. A well-marked glazed condition in two only, of whom one died. The tongue was tremulous in six cases, two of them fatal, whilst difficulty of protrusion was only observed once, shortly before death.

Respiration.—Almost without exception a careful examination of the lungs determined the existence of abnormal sounds, such as ronchi, crepitations, &c., indications of the bronchial catarrh belonging to enteric fever. Severe affections of the lungs, such as pronounced pneumonia or bronchitis, are considered under the head of complications. The lowest frequency of respiration was 16, a rate which never varied in the particular cases throughout the course of fever. This was only observed, however, in two very mild cases, both under 17 years of age. In every other case the respiration was quickened, the rise in frequency being generally a day or two later, and continuing a little longer, than the date of maximum temperature. In the majority of cases the quickest respiration was found commencing towards the close of the second week (eleventh day), and continuing well into the third week (eighteenth to twentieth days).

In one case the respiration ran up as high as 70, in another to 60, both fatal. In neither was this high rate of breathing contemporary with the greatest frequency of pulse. It should be stated, however, that grave lung affections—broncho-pneumonia—existed in both. The most prevalent rate of breathing appears to have been between 25 and 35 (twenty-six cases), whilst a frequency of 40 and over was a grave omen, as out of eighteen cases in which it occurred are included seven deaths.

The effect of the graduated bath was to slightly decrease

the frequency of respiration in Case 28, and in about an equal degree to increase it in Case 52.

Urine.—No estimation of chlorides or urea was made, except in an occasional case, and in these the examination was not made sufficiently frequently to obtain reliable evidence. Albuminuria was observed at some date or other in twenty-six cases, or 41·9 per cent. Albumen was present in the urine of eighteen patients on the day of admission; in the remaining eight it was detected after admission, and then only for a short period. Of those patients eighteen, who had albuminuria on admission, four died, in three of whom microscopic and other evidence proved the presence of permanent Bright's disease. As regards the period of illness in which albumen was detected, we may observe that it was present in a case admitted on the third day of fever, in one on the fourth, in one on the sixth, in one on the seventh, in two on the eighth, and in one on the ninth days, severally; whilst it was also found in nine cases who came into hospital between and including the tenth and fourteenth days.

Turning next to eight cases which had albuminuria only subsequent to admission, we find that it began in one on the sixth day, lasting two days, in one on the seventh, in two on the thirteenth, in one on the sixteenth, in one on the eighteenth, in one on the twenty-fifth, lasting eight days,[1] whilst it appeared in one case as late as the sixtieth day of fever, or first day of relapse. No detailed notes of the duration of temporary albuminuria are available.

As regards age, the youngest patient in whom albuminuria existed was 2 years old (Case 41), the oldest 50; these, by a singular coincidence, representing the actual extremes of age of our sixty-two cases. The ranges of specific gravity vary from 1008 (with no albumen) to 1045 (with no sugar); both these patients died. The specific gravity was generally increased; it was over 1020 and under 1025 in twelve cases, whilst a sp. gr. of between 1025 and 1030 was noted in twenty-two cases. A low sp. gr., that is to say, below 1017, was found in thirteen urines only, of which one was in a case of probable chronic Bright's disease. Of the remaining twelve, four had

[1] This case should perhaps have been omitted, as the albuminuria was apparently due to salicylism.

albumen, which was only temporary, notwithstanding the age in one or two suggested the probability of chronic Bright's disease. No regular estimation of the daily excretion of urea was made.

Delirium.—This term here applies to the cases of those patients who presented decided mental aberration, not to the cases of those who talked in their sleep but were perfectly rational when awake. Delirium was absent in thirty-six cases, so far at least as their sojourn in the hospital was concerned, although it must be kept in mind that some of these may have had, and probably did have, occasional mental confusion prior to treatment.

Severe delirium is recorded in thirteen cases, its onset not unfrequently being associated with highest temperature. Thus, in eight cases the date of most severe delirium corresponded with that of greatest fever; in the remaining six the acme of delirium occurred, in the respective cases, one, two, three, four, and fifteen days *subsequent* to the date of highest temperatures, whilst the cessation of delirium exactly dated with lowest temperature in four cases, and approximately with lowest temperature in three.

Severe delirium was a symptom in six out of the eight fatal cases. It was present in the two cases in which graduated baths were used, and was relieved or abated by the baths.

Our cases, no doubt few in number, illustrate the rules:—That delirium is associated with hyperpyrexia: that delirium declines in severity with the subsidence of the temperature: and that delirium is an index of the severity, and consequently of the danger, of the attack. Seeing that in this and preceding years delirium has either ceased or abated under the use of the graduated bath, we submit that our evidence is in favour of the regular use of that remedy in high fever.

Slight delirium is recorded in thirteen cases. On a review of the whole number of cases which presented delirium, we find it commencing as early as the sixth day, and in a relapse as late as the sixty-third. It was most prevalent, however, from about the seventh or eighth to the sixteenth days. We note in one case the cessation of severe delirium on the occurrence of a smart attack of hæmorrhage (Case 28). Other nervous symptoms noted were "picking at bedclothes" in three, all

fatal; great drowsiness, with marked cerebral maculæ, but without delirium, in one; intense hyperæsthesia of the whole body in one; severe tremors in one, which terminated in death, the post-mortem examination showing deep and extensive sloughing.

Complications.—In the report for the winter of 1877 complications have been arranged in four groups: the first comprehending the lesions proper to enteric fever; the second, the accidents which may occur in any febrile process, or in any person much enfeebled; the third, accidental lesions related to the lesions proper to the fever; the fourth, accidental lesions related to the particular weaknesses of individual patients. The first group has been incidentally treated in our general account of symptoms. The remaining groups may now be examined. In the second we find:

1. Phlebitis, three cases. Double in two, commencing in one of them in the veins of the right leg on the 31st day, and in those of the left leg on the 49th day of fever. In the second case supervening in the veins of both legs simultaneously on the 49th day of illness. In the third case attacking the veins of the right leg as late as the 65th day.
2. Bed sores, two cases.
3. Incontinence of urine, four cases, three in females, one in a male.
4. Retention of urine, one case, a male.
5. Post-febrile mania and delusions, one case, from the 39th to the 51st day.
6. Boils, three cases.
7. Cellular inflammation of left arm, one case, fatal.
   „ „ neck, one case.
8. Abscesses surrounding the ear, one case.
9. Buboes in the groin, on the 7th day of fever, in a lad aged nine years.
10. (Of doubtful position.) Congestion of the fauces, seven cases, in one of which there was subsequent paralysis of the muscles of the soft palate, and in another it was regarded by Dr. Harley as "scarlatinal."

The tenth category in this group is marked "doubtful" for reasons given in preceding papers.

Under the third grouping we find:

1. Congestion of lungs (marked), three cases.
2. Pneumonia and broncho-pneumonia, five cases, three terminating fatally.
3. Bronchitis, six cases.
4. Pleurisy, one case, associated with bronchitis.
5. Hæmorrhage from the bowels in five cases.
6. Epistaxis in four cases.
7. Peritonitis, one case, commencing on the 18th day and ending in recovery. (Case No. 10, Dr. Stone's.)

8. Vomiting in three cases.
9. (Doubtful.) Deafness, ten cases; in two of which there was also subsequent otorrhœa.

It would appear that our statement made last year, viz. that "hæmorrhage occurs more frequently in adults," is not quite borne out by this year's experience; for, whereas last year the ages of patients who had hæmorrhage from the bowels always exceeded 20 years—the average being 31 years—this year the extremes are 12 years the youngest, and 18 the eldest, the average being 16 only. Similarly, as regards epistaxis, the average age at which it occurred was, according to last year's report, 25; this year it falls as low as 14.

Touching date, hæmorrhage from the bowel appeared as early as the fifteenth day of fever in one case, and as late as the forty-fourth day (during a relapse) in the latest. Epistaxis appeared as early as the fifteenth day (two cases), and never later than the twentieth. It is difficult to account for the number of cases complicated with deafness. We are not justified in attributing it to extension of catarrh from the throat to the Eustachian tubes, since, on comparing the cases, we find of those patients who had deafness none are recorded to have had precedent congestion of the fauces or the nasal cavities.

All except two had delirium at one period or another, several severely. We are rather inclined to attribute the deafness partly to temporary paresis of auditory muscles, partly to the states of mucous membrane; but we have no means of estimating the actual numerical influence of either. The point is, however, of much importance, and will receive closer attention in the future. In our classification we have marked these complications as of doubtful position, intermediate between the third and fourth groups.

In the fourth and last group we find:

1. Phthisis, two cases, both females; one fatal.
2. Endocarditis, six cases.
3. Pericarditis, one case.
4. Periostitis, one case, commencing on the 78th day.
5. Rheumatism, one case.
6. Abortion, one case, on the 6th day of fever and during the 6th month of pregnancy.
7. Convulsions, one case, on the 50th day, two days before death.

In one of the above cases of phthisis there was evidence post mortem that the enteric process had rendered active or increased the activity of the tubercular process in the lungs. The six cases of endocarditis do not include those cases in which a murmur was only temporary or faint and variable.

Treatment.—We note this year a common and preponderating use of saline medicines. In most of the cases without diarrhœa either the liquor ammoniæ acetatis or the effervescing citrate of potash, sometimes combined with carbonate of ammonia, sometimes with camphor, have been described as routine febrifuges. The mineral acids have generally been given where there has been much diarrhœa, and, therefore, less freely this year than they would be in more characteristic epidemics. No specific treatment has been, in fact, attempted, and outside the formal, harmless, and probably not very actively useful prescriptions above noted, the method has been expectant.

We must note, however, that Dr. Harley's extensive experience in the treatment of fevers has led him to pursue a plan which is advocated by Trousseau, and very generally adopted on the Continent, viz. the use of alteratives or laxatives. Dr. Harley's most general prescription was :

℞ P. Hydrag. cum Cretâ, gr. ij ;
P. Ipecac. co., gr. v.
Fiat pulvis nocte maneque sumendus.

In respect of the condition of hyperpyrexia, graduated baths were used with two patients with good results so far as the symptoms for which they were ordered were concerned. This remedy again appears to have been powerful in controlling delirium. Whenever there was mental confusion prior to a bath, the patient always became rational directly after. In four other patients the external application of cold by other means than the bath was used as a method of reducing temperature.

In two of them "cold sponging" was applied every fourth or sixth hour; but although the first applications had a sensible effect on the heat, they rarely reduced it more than 1·5°, and in the later applications not so much. In another case in which "tepid" sponging was resorted to, the result as regarded the lowering of temperature was not very marked,

and was only temporary, although the process had a decidedly soothing effect on the patient.

One patient (Case 7) had the "wet-pack" on the twenty-first day of fever. He was enveloped in a sheet wrung out of tepid water, and was allowed to remain in it twenty minutes. The effect was a fall of temperature from 104·8° to 104°; the pulse, which was 130, and the respiration 34, both remaining unaltered.

Salicylate of soda, in gr. xx doses every two hours, was given once on the eighteenth day of fever, when the temperature was high. It was continued for two days, but as it had no good effect, and as albuminuria was now observed, it was taken off, and ten grains of the sulphate of quinine were given every two hours instead. Although the temperature fell slightly after this treatment, the fall was not sufficiently abrupt or prolonged to warrant the assumption of its being due to the remedy.

For diarrhœa vegetable astringents were favourite remedies, such as tannic acid, p. kino comp., tr. catechu, or opium, in one or other of its numerous forms. Occasionally the tincture or wine of opium was combined with dilute sulphuric acid, notably when there was diarrhœa, with a dry glazed state of tongue. But whenever diarrhœa became urgent the remedy used with greatest success was an enema of starch and opium, or morphia (gr. $\frac{1}{4}$ to gr. $\frac{1}{2}$) in the form of a suppository. Constipation, on the other hand, was treated by mild laxatives, generally castor oil, or by simple enemata. The latter were, without doubt, the more safe and efficacious.

The general plan in certain wards was not to allow the bowels to be confined longer than three days, an enema being regularly used at the end of such periods.

Vomiting as an urgent symptom was rare. Bismuth was the drug used in its treatment, in two cases combined with dilute hydrocyanic acid.

For hæmorrhage no remedy appeared so effective as the spirit of turpentine in ten-minim doses. It almost invariably controlled the bleeding, and had, further, a beneficial effect in reducing distressing distension of the belly. In addition, ice-bags were generally applied to the abdomen over the seat of pain, as probably indicating the source of hæmorrhage. When

the bleeding was excessive and did not yield to these means, ergotin was injected subcutaneously. We may remark here that, as in the case of diarrhœa so in the case of hæmorrhage, it is, in our opinion, wise to wait till the broad relations of the symptoms to the summary facts of the case are at least approximately clear. As a moderate looseness of the bowels may be taken to be favourable, in the majority of cases, to the patient's well-being, so a hæmorrhage in some cases affords great relief to the abdominal and general symptoms.

[In one of the cases of this year a sudden and somewhat copious intestinal hæmorrhage was followed at once by abatement of all the symptoms of a severe case, by moderate fall of temperature, by relief of somewhat acute abdominal pain, by relief of signs of much cerebral oppression, such as torpor and delirium. In this case I refrained from the use of astringents and opium so long as the benefit continued to accompany the loss of blood, having at length recourse to opium for the double purpose of checking hæmorrhage and diarrhœa. The patient after this made a slow but excellent recovery. (W. M. O.)]

The vigorous use of astringents in moderate diarrhœa and hæmorrhage is, to our mind, to be deprecated. For the constipation which commonly follows must call, in its turn, for some treatment, and then there is much chance of renewal of the first condition, and not a little chance of the accidents incidental to the removal of decided constipation already alluded to. The true expectant treatment, therefore, will hold the balance between constipation and diarrhœa or hæmorrhage. Constipation should never be allowed to persist more than three days when it can nearly always be easily relieved by simple enemata, or by oil enemata; the peristalsis set up by these in the large bowel being evidently taken up in turn by the small bowel. Diarrhœa and hæmorrhage should not be checked hastily, or until there is evidence that, being moderate, they yet are doing distinct harm, or unless they are violent. Even then the use of opiate enemata in the case of diarrhœa, of opium, turpentine, and ergot, in hæmorrhage, is, in our opinion, greatly to be preferred to the use of tannic acid, acetate of lead, chalk, and other astringents.

In pain or distension of the abdomen the turpentine stupe

was most generally ordered; but beyond this, recourse was had to the linimentum belladonnæ, or hot fomentations, or linseed poultices; and, in case of violent localised pain suggestive of local peritonitis, to the ice-bag.

In delirium bromide of potassium, in doses from fifteen grains to a drachm, were given; chloral, too, was prescribed frequently either by itself or in conjunction with the bromide. Opium was rarely given to check this distressing symptom.

Of the treatment of minor complications and sequelæ of enteric fever there is little to say. In deafness with otorrhœa injections of chloride of zinc solutions were made with advantage.

In congestion of the pharynx or tonsillitis, the chloride of potash gargle was a most suitable remedy.

In children with lung complications a most soothing application is the oil-jacket. It was frequently observed that young patients who were restless and sleeplesss by reason of dyspnœa and cough were wonderfully relieved and quieted by this simple remedy.

It speaking of medicinal stimulants it is only necessary to state that ammonia either in the form of carbonate or the spiritus aromaticus, was the only drug used.

But as regards alcoholic stimulants, the following figures are of interest:

Forty patients were ordered alcohol at one time or another of their illness, the remaining twenty-two getting none. Wine was the stimulant most frequently used (thirty-four cases). In seven patients it was judged necessary to prescribe alcohol on the day of admission. Of the rest, one had wine and brandy in the first week of fever; ten in the second week; seven in the third week; four in the fourth week, six in the fifth week, amongst which were three cases of relapse or recrudescence; two in the sixth week; one in the ninth week, a relapse, and one during convalescence only.

Brandy was prescribed alone in six cases only, but in ten others it was ordered either at the same time as, or subsequently to, the wine, evidently as a more powerful and expeditious stimulant for the relief of urgent depression. The quantity of alcohol varied from two ounces of wine per diem, given to a child, to twelve ounces of brandy to a man, who died, and a similar allowance of wine to another man, who also died.

General table of relapses (after Murchison).

Table of duration in days in the relapse cases.

Case.	Age and sex.	Primary fever.	Intermission.	Relapse.	Total duration of fever.	
1	22, M.	31	6	11	48	Fatal.
2	12, M.	15	11	19	45	
3	46, M.	42	10	20	72	
4	27, M.	32	5	19	56	
5	18, F.	30	4	20	54	
6[1]	26, M.	—	—	—	53	Fatal.
7	18, M.	14	19	23	56	

ABSTRACT OF CASES OF RELAPSE (EIGHT) IN ENTERIC FEVER.

CASE 1. *Severe primary attack, lasting four weeks; relapse on thirty-seventh day; death; no post-mortem examination.*—(No. 1) C. R—, æt. 22, male, signalman, admitted into Job Ward under Dr. Bristowe, August 2nd, 1879, the fourth day of fever.

His symptoms on admission were diarrhœa, distension of belly, tongue furred and fissured, numerous typhoid spots, high temperature, which attained 106·4° on the evening after admission, and severe delirium. Convalescence was attained in the fifth week. On September 4th, or thirty-seventh day, the temperature again went up, there was a return of distension of abdomen and attendant pain, with diarrhœa, dry tongue, but without spots or delirium. Death occurred on the forty-eighth day of fever, or the eleventh of relapse, a sudden fall in the temperature probably denoting perforation. No post-mortem examination was allowed. This patient had a large amount of albumen all through his illness.

CASE 2. *Mild primary attack; relapse on twenty-sixth day, very severe; recovery.*—(No. 2) J. H—, æt. 12, male, admitted to Arthur Ward, under Dr. Harley, on the 7th August, 1879.

His illness commenced on August 1st. He had a mild

[1] In this case there was a double relapse, and as they were both overlapping relapses it is impossible to fix the duration of the primary fever.

primary attack. There was a scanty eruption, pain and gurgling in right iliac fossa, tongue coated but moist, bowels never purged more than twice a day, and often only relieved by enemata. The temperature, which had been up to 103°, gradually subsided, till August 16th it was below normal, and recovery seemed established. He was placed on "milk diet" August 23rd. This was followed three days afterwards (twenty-sixth day) by a fresh rise in temperature, high pulse (136), distended abdomen, with other symptoms of relapse, but without fresh spots. There was again, however, a tendency to constipation, but there was hæmorrhage from the bowel on the forty-fourth day, or nineteenth day of relapse.

The highest temperature occurred during the relapse in this case, which seems as though the primary attack was mild and of short duration, to be followed by a relapse of greater severity.

Case 3. *Primary attack somewhat severe; relapse on fifty-third day, very severe; recovery.*—(No. 32) T. B—, æt. 46, male, labourer, admitted to Job Ward, under Dr. Harley, on November 8th, 1879, having been ill eleven days.

On admission, he had an abundant typical enteric rash, looseness of bowels, tongue furred, with a tendency to become dry, quick thin pulse, and occasional delirium. The evening temperature was maintained at over 103° Fahr., and with well-marked remissions, till the end of the fourth week, after which the fever abated, and he appeared well again in the seventh week.

On the 20th December (fifty-third day from commencement of symptoms) "bread-and-milk" was ordered in the patient's dietary, the temperature, which was normal, running up to 100·6° the same evening, and to 103·4° the night after. The typhoid symptoms returned, he had fresh spots, severe diarrhœa, swollen abdomen, and occasional wandering. The acme of the relapse was reached in the ninth week, when the evening temperature was frequently as high as 104°, with a corresponding morning temperature of 103°. Permanent convalescence was not attained till January 8th, the fever thus lasting as long as seventy-two days. It should be noted that during the apparent convalescence between the fevers the bowels were constipated.

Case 4. *Primary attack moderately severe; relapse on thirty-eighth day, also moderately severe; recovery.*—(No. 44) A. B—, æt. 27, male, labourer, admitted to Job Ward, under Dr. Ord, on December 3rd, 1879. He began three weeks before admission with headache, pains in the limbs, vomiting, and diarrhœa.

There was a copious rash out on admission, and he had successive crops of fresh spots till December 10th; his temperature for two successive nights was 103·6°; tongue furred, moist, but there was an absence of marked bowel symptoms. There were, however, slight bronchitis, with congestion of the bases of lungs, also a trace of albumen in urine. In the second week of sojourn (fifth of fever) the temperature, though falling, still kept high (100°), but was down at 98·6° at the commencement of the following week.

On December 19th (thirty-eighth day) the temperature curve shows a sudden bound from normal the previous evening to 104°, with all the attendant symptoms of relapse. There was now pain and tenderness in the abdomen, especially in the right iliac fossa, tongue again furred, pulse quickened, and at times dicrotic, and finally, on December 31st (thirteenth day of relapse), a fresh crop of spots appeared, the eruption continuing to be noted till January 3rd (sixteenth day of relapse).

Diarrhœa was again an absent symptom during the relapse, as it had been during the first attack; the bowels had frequently to be acted upon by enemata during the whole time he was in hospital.

The date of relapse coincided with the allowance of "bread-and-butter" in the patient's diet.

Case 5.—*Primary attack severe; relapse on thirty-fifth day, moderately severe; recovery.*—(No. 45) G. W—, æt. 18, female, single, admitted to Charity Ward, under Dr. Ord, on November 19th. Ill nine days before admission. The primary attack was severe. Copious eruption on admission, lasting six days, smart diarrhœa, slight delirium, tongue dry and brown, distension of abdomen, with pain and tenderness in the right iliac region. The temperature kept high during

the first week of residence (second of fever), average 104·2°; with average morning falls of 1·7°.

During the next week there was still high fever and diarrhœa, but with the heat gradually falling till, on December 10th (thirty-first day), it was normal.

The commencement of the relapse was on December 14th (thirty-fifth day), when the thermometer registered 102°; there was a return of the purging, with severe pain in the belly, tongue dry, pulse quickened till, on December 16th (third day of relapse), it attained its greatest frequency (144) during any period of the whole fever. The relapse was not marked by fresh spots. We may note that during the relapse, when diarrhœa again became urgent, the urine gave an excellent deep blue reaction of indican. The purging was treated by morphia suppositories (gr. $\frac{1}{4}$).

Subsidence of the fever did not occur till January 2nd, 1880, the whole fever thus lasting fifty-four days.

There was nothing in diet or treatment which would account for this relapse.

Case 6.—*Primary attack somewhat severe; first relapse on twenty-seventh day; fresh fever after abatement on thirty-fourth day (second relapse?); high temperature; baths; death.*—(No. 52) W. B—, æt. 26, male, French polisher, admitted to Job Ward, on January 13th, 1880, under Dr. Ord.

This case is more fully reported under the head of "Baths." The primary attack was somewhat severe; there was no diarrhœa, no obvious enlargement of spleen, no certain appearance of spots. The first relapse commenced suddenly with sharp diarrhœa, the temperature was higher than in the primary attack, and spots appeared on the seventh day. The symptoms abated in the beginning of the third week of the relapse, but underwent rapid and severe aggravation, so as to suggest the occurrence of a second overlapping relapse on the seventeenth day. The temperature now ran high, reaching 107·2°; it was controlled by baths, but diarrhœa and vomiting, marked continued intensity of abdominal lesions, and death occurred on the eighth day of the second relapse, seven days after the temperature has reached 107·2°. The temperature

did not rise above 105° after the bath till shortly before death, when it was 106·6°.

Case 7. *Primary attack not severe; relapse on thirtieth day severe, with hæmorrhage; recovery.*—(No. 62) J. B—, æt. 18, male, shopman, admitted to Arthur Ward, under Dr. Stone, on March 24th, 1880. Ill ten days.

On admission there was a copious typhoid eruption, distension of abdomen, and furred moist tongue; the bowels were confined. The temperature, which on admission was 100·8°, continued to rise to 102° on the evening of the fourteenth day of fever, but was followed by a fall to normal during the next week, after which the patient was making a rapid recovery.

On April 12th (thirtieth day of fever) he was placed on "mixed diet," the bowels being open. On April 16th (thirty-fourth day) there was a sudden elevation of temperature to 104·6°, with several fresh spots, furred tongue, and considerable pain in the right flank. Vomiting ensued on the following day, and on April 19th, or fourth day of the relapse, there was smart hæmorrhage from the bowel, producing a very anæmic appearance in the patient, with a weak dicrotic pulse, and reducing the temperature from 103·2° to 99·6°. The hæmorrhage was treated with p. kino co., gr. v, every hour; but bleeding again returning on April 22nd (fortieth day) a subcutaneous injection of ergotine, gr. iv, was given with good results. The patient was extremely prostrate from the hæmorrhage, and there was very little movement of the belly, which was distended.

The fever still kept high till April 23rd, when the relapse terminated, the tongue cleaned, and the bowels acted for a time regularly, although they eventually became confined during recovery.

Two other cases may be here mentioned in relation to relapse.

The first was an undoubted example of a second attack of enteric fever (Case 16), the patient having been an in-patient in February, 1878, under Dr. Stone, for an attack of the disease, and again coming in, under Dr. Harley, on October 9th, 1879, just about twenty months after his first seizure.

The second (Case 31) was probably one of relapse. The

patient, a girl aged 18, admitted on November 8th, 1879, had been ill six weeks, the previous history reading like that of typhoid fever, a suggestion which was strengthened by the statement made "that the doctor always looked for spots." She was recovering till thirteen days before admission, when she again got worse, thus probably fixing the date of relapse. On examination in the hospital, she had every sign of typhoid, including spots, looseness of bowels, enlargement of spleen, and tympanitis. Permanent convalescence commenced on November 22nd, or (assuming our surmise to be correct) the twenty-seventh day of relapse.

Cases of recrudescence.

Case 9.—E. J. P—, æt. 10, male, admitted to George Ward, under Dr. Ord, on September 8th, 1879.

Ill eighteen days before admission. The attack was characteristic, but not severe, and on the twenty-eighth day the temperature was down at normal, having been as high as 104·8°.

After an intermission of six days, during which there was no fever, the patient was allowed "bread-and-butter" for tea; this was followed by an immediate return of feverishness (100·2°), a dry tongue, and a tumid condition of abdomen. The recrudescence subsided on the return to "milk diet," having lasted three days only. The bowels had been rather costive during the intermission.

Case 10.—J. R—, æt. 13, female, admitted to Christian Ward, under Dr. Stone, on September 13th, 1879, her illness having commenced fourteen days before.

On admission the abdomen was swollen, spleen felt below costal arch; successive crops of spots appeared between the nineteenth and twenty-sixth days. Highest temperature 105·2° on the seventeenth day.

Temporary convalescence on the thirty-fourth day (October 2nd), maintained till October 9th, when there was a fresh exacerbation of fever, the temperature running up to 100·2°. and continuing about that height for four days; the tongue again became coated. The fever eventually terminated on October 14th, or forty-fifth day. There had been constipation previous to the recrudescence; but it is also to be noted that

the return of the fever was on the evening of the day on which "bread-and-milk" was allowed; the patient having hitherto been on "fever" diet.

Case 12.—C. S—, æt. 9, male, admitted to Arthur Ward, under Dr. Harley, on October 3rd, 1879. His illness dated from September 26th.

There appeared the rash on the eleventh day; there was also general pain all over the belly, but especially in the right iliac region, but diarrhœa was absent. His highest temperature 105·2°, was on the evening of admission.

On the twenty-first day, the temperature was normal, and continued so, or fell below normal (as it frequently does in young patients convalescing from enteric fever), till the end of the fifth week, when a sudden rise to 100·6° was observed. This lasted two days and was attended by severe diarrhœa and general feverishness. The recrudescence was not long enough to apparently affect the weekly averages.

The patient had been put on "extras" the day before the rise in temperature.

Case 13.—F. S—, æt. 24, male, labourer, was admitted to Arthur Ward on October 4th, or tenth day of fever. He had a high temperature, 104·4°, a pulse of 114, severe diarrhœa, and numerous rose-coloured spots.

The attack was severe and lasted twenty-eight days, after which the bowels were torpid. On the forty-fifth day, the temperature, which had been subnormal, suddenly rose to 103·6°; with attendant discomfort, headache, and pain in epigastrium. On the following morning the thermometer registered 99·2°. The recrudescence was only temporary, and was relieved by the administration of castor oil, being evidently connected with costiveness.

Case 15.—G. T—, æt. 25, male, 'bus-driver, admitted to Arthur Ward, under Dr. Harley, on October 9th, 1879. His illness commenced on October 1st, the attack being mild. On the twenty-first day the fever left him, and he continued to convalesce till the thirty-sixth day, when there was a morning temperature of 101·8° (the highest observed during the illness), and an evening temperature of 103°. The recrudescence

was marked by a return of splenic enlargement, furred tongue, and general symptoms of feverishness, recovery not being established till November 10th, or the forty-first day.

The recrudescence came on after eating chicken for dinner, his previous diet having consisted of milk, with an occasional allowance of fish.

Case 21.—A. B—, æt. 10, female; was admitted to Charity Ward, under Dr. Bristowe, on October 7th, 1879. Ill thirteen days before. She had a smart attack, her chief symptoms being diarrhœa, a copious rash, a tender and enlarged spleen, with slight distension of the abdomen. The temperature on admission was 104·3°.

The recrudescence dates from the thirty-fifth day, when the temperature, which had been normal and subnormal, sprang up to 100·6°. The return of febrile symptoms lasted three days, and was associated with the commencement of "bread-and butter" diet, which was immediately taken off with good results.

Case 26.—J. S—, æt. 16, female, single, servant, admitted to Christian Ward, under Dr. Stone, on the 24th of October, 1879.

Ill ten days prior to admission. The chief points about her attack were high temperatures in the evenings of her first week of residence (second of fever), with marked morning falls, the remissions often exceeding 3° Fahr., and instead of diarrhœa, there was the opposite condition all through her illness. There were only a few spots.

In the fourth week the temperature was normal, the tongue was clean and moist, but the bowels still obstinately confined.

The second fever commenced on November 19th (thirty-fourth day), the temperature rising to 100·4°, and continuing above 99° for the three following nights, with characteristic morning remissions. The recrudescence does not seem to have been associated with any further marked symptoms beyond free sweatings; it lasted five days. A change of food had been prescribed, or rather, "fish" had been added to the diet on the day prior to recrudescence.

Case 39.—T. B—, æt. 16, male, admitted to Arthur Ward,

under Dr. Harley, on November 12th, 1879. His illness began on November 5th. There was a plentiful rash on admission, but none after; pain in both iliac fossæ; no enlargement of spleen detected; bowels confined; temperature 103·2°. During the third week (second of sojourn), the fever gradually subsided, as did its accompanying symptoms; the bowels, however, were still obstinate.

There were no observations of temperature made during the fifth week, the patient being considered as having recovered. In the sixth week, on December 15th (forty-first of fever), a sharp recrudescence occurred, the temperature rising to a height (104·2°) exceeding that of the first week of residence. There was also frontal headache, but no spots. The following night the temperature was 101·4°, after which a sudden fall to normal, the fever disappearing finally on December 20th (forty-sixth day). There was constipation throughout, the bowels only being opened after laxatives or enemata. As the patient had been taking milk diet for a week prior to the recrudescence, and without any immediate bad symptom, the return of fever must be attributed to the prolonged obstruction of the bowels.

Case 43.—J. T—, æt. 17, male, tailor, admitted to George Ward, under Dr. Bristowe, 17th November, 1879. He had been ill of fever twenty-three days prior to admission. On examination his temperature was very high, 105·2°, the average for the evenings of his first week of sojourn being 104·9°. The attack was a very sharp one, severe delirium being present, although the diarrhœa was not excessive. A normal range of temperature was gained and maintained during the seventh week (fourth of residence). On the fifty-first day, the bowels having been constipated for some days previously, there was a rebound of temperature from normal to 100·2°, and eventually to 101·2 on the fifty-fourth day. No other symptoms beyond those general to feverishness were recorded, the temperature gradually subsiding to December 24th, when convalescence was established, the fever having thus lasted sixty days. The return to the febrile state followed the use of an enema, given to remove constipation.

Case 47.—E. K—, æt. 17, female, single, servant, was

admitted, under Dr. Ord, on the 29th November, 1879, the sixth day of fever. There was no diarrhœa; on the contrary, frequent enemata were requisite: the abdominal symptoms were not pronounced, and only on December 3rd (eleventh of fever) were a few enteric spots noted. Her pulse, on admission, was 86, and the temperature 103·2° on the following night. She had at this time the physical signs of endo- and pericardial inflammation. All her feverish symptoms subsided by the end of the third week, with the exception of one irregular rise of the temperature, which occurred on the thirty-first day. In the seventh week she was considered so far advanced in convalescence as to be allowed up, and no temperature observations were made. Fish was also allowed her for dinner.

On January 14th, 1880 (the fifty-third day), she complained of epigastric pain and headache. The bowels were purged three times, tongue slightly furred, and abdomen somewhat full. These symptoms subsided as quickly as they arose, after the patient had been again placed on fever diet, no rise of temperature occurring after January 16th, the forty-fourth day.

The cases of relapse and recrudescence are stated this year, as in last year, with little comment. We propose next year to comment upon the experience of the three years.

Cases in which the graduated bath was used.

Case 1. *Enteric fever; relapse; baths; second relapse; death.*—William B—, æt. 26, French polisher, residing in Kennington Road, admitted to Job Ward, under Dr. Ord, January 13th, 1880. Died February 27th, 1880.

The primary attack was neither severe nor well marked. The patient had been ill for "about a week" before admission, having had several attacks of shivering, and having lost appetite, but having had no pain in the abdomen nor diarrhœa.

On the day of admission he had begun to experience abdominal pain, and to cough. His skin was moist, and not hot to the touch; temperature 100·2° in the morning, 102° in the evening; there was no eruption. The abdomen was not distended; there was tenderness in the right iliac fossa, but

no gurgling. The spleen was not evidently enlarged. Rhonchus was heard over the larger bronchi, not elsewhere; respiration 28. The heart sounds were natural, pulse 96; there was no delirium; the urine of sp. gr. 1008, containing no albumen. The temperature was only once as high as 104°, in the beginning of the fourth week of the illness. Three doubtful spots were found in the second week. Constipation existed throughout. The patient perspired generally with great freedom.

On February 2nd, after an appearance of improvement, but not of actual convalescence, the patient was attacked with diarrhœa, unaccompanied by abdominal pain or tenderness. Bronchitis appeared three days later, and on the 9th of February some spots were observed, and some dark clotted blood was found mixed with the stools. The spots faded after three days, the diarrhœa ceased, and the patient was again improving; but on the 20th February, with a return of diarrhœa, the temperature rose at midday to 105°.

The graduated bath was at once used. The temperature of the bath was 95° at the beginning, and was reduced during twenty minutes, the period of immersion, to 68°. The patient's temperature, 104·8° at the beginning, fell to 98·4°; the pulse rose from 112 to 120. The patient shivered after the bath and his face was rather blue. He slept for three hours after the bath.

The temperature again rose quickly. At 6 p.m. it was 105·4°, at 7.30 p.m. 107·2°. A second bath was given at 8 p.m. Bath 95° to 75° in twenty minutes; patient 105° to 99°; pulse 112 to 120; respiration 36 to 40.

There was again shivering after the bath, followed by dozing.

The diarrhœa continued after this, in spite of various treatment; the pulse was dicrotic; and vomiting set in the second day after. On the 24th, the fourth day after the bath, the patient was in a characteristic "typhoid" state; delirious at night, prostrate in the day, with quivering lips, sordes on lips and teeth, vomiting, and loss of control over motions. The pulse was 132, of running character. In the evening convulsions occurred, and all symptoms were aggravated. But all this time the temperature observed at short intervals never reached a higher point than 104·4°.

The patient gradually sank and died on the 27th February, a week after the high temperature and bath, 106·6° being registered in the axilla not long before death.

Post-mortem examinatinn.—Spleen enlarged, weighing 1 lb. 8 oz.; deep and extensive affection of Peyer's patches; much congestion of duodenum and upper part of jejunum; some ulceration of the solitary glands in large intestine.

Dr. Seymour Taylor notes:—"Some of the ulcers above the last two feet of ileum showed signs of healing. All the remainder were deep, without signs of healing, with the edges deeply undermined. In some the serous coat alone remained intact as the floor of the ulcer. 'Cloudy swelling' in kidneys."

Case 2. Hannah H—, æt. 17, admitted October 28th, 1879, under Dr. Ord; discharged cured January 31st, 1880. Marked access of illness fourteen days before admission. The attack was severe from the time of admission. Spots were present; the spleen was not much enlarged, but the temperature ranged in the evenings from 104° to 105·4°. Constipation.

The patient, a remarkably strong, high-coloured, girl began on the 4th November to suffer from restlessness and delirium, and the temperature having reached 105·4° at 1 a.m., the graduated bath was administered.

Details.—Graduated bath on twenty-fist day of fever. Bath 94° to 69° in thirty minutes; patient 105·2° to 101·2°; pulse 120 to 108; respiration steady at 24.

More comfortable after bath: slept some time.

At 4 p.m. the temperature had again reached 105°.

Second bath.—Bath 93° to 74°, in twenty-seven minutes; patient 105° to 102·6°; pulse 120 to 112; respiration 20 to 18.

Slept some time after bath; but at 8.25 p.m. the temperature had reached 105·4°.

Third bath, 9.15 p.m.—Bath 98° to 64°, in twenty-five minutes; patient 105·4° to 102; pulse 124; respiration not noted.

The patient felt chilly and weaker during this bath.

She was now put on salicylate of soda, grains twenty, every second hour. By the next evening the temperature was 99·8°, and the patient was very deaf. She often vomited the salicylate, and become delirious, having also muscular tremors.

On November the 7th it was clear that the salicylate was doing no permanent good; the pulse was 116, dicrotic; there was much delirium, and the urine contained albumen and casts. The temperature was at 105·4° at 2 p.m, when the fourth bath was given.

Fourth bath.—Bath 98·5° to 68°, in twenty-four minutes; patient 105·4° to 103°; pulse 120; respiration 28, the temperature remaining at 103°. A dose of salicylate was given, but was immediately rejected. An ounce and a half of brandy was given and retained. The patient now slept comfortably for some hours.

At 6 p.m. temperature 105·4°, rising.

Fifth bath, November 7th, 6.40 p.m.—Bath 95° to 60° in twenty-two minutes; patient 105·4° to 100°; pulse 132 to 108; respiration 28.

After this bath quinine was given for a few doses, ten grains every two hours. The temperature for the next week remained below 104°, and a low typhoid state prevailed, for which stimulants were freely administered.

On the 12th November a motion containing blood was passed involuntarily. The ice-bag was applied over the abdomen, but blood was passed during the next two days, and again, freely, on the 16th. The first hæmorrhage was followed by so much relief of the general symptoms that no repressive treatment beyond the use of the ice-bag was attempted. The second, being more severe and tending evidently to weaken the patient, was held to call for such treatment. Ten drops of spirit of turpentine and seven drops of liquid extract of opium were given every four hours. The note next day is:—"November 17th.—No hæmorrhage since yesterday morning; seemed none the worse for it yesterday; has been quiet, no delirium; takes nourishment well, and sleeps soundly." And thus was introduced an unbroken but tedious convalescence. It was not till the end of December that normal temperatures were reached, and January had all but passed before the patient was fit to leave the hospital.

Case 3.—This case was one of acute rheumatism, with hyperpyrexia, pericarditis, endocarditis, bronchitis, pneumonia, and pleurisy.

Jane B—, æt. 13, was admitted on February 3rd, 1880, under Dr. Ord; discharged well on April 21st, 1880. Ill two days before admission with joint inflammation, and cough with copious expectoration.

When admitted she had a temperature of 104°, wide-spread and severe inflammation of joints, pericarditis, a presystolic murmur at the apex, with hypertrophy of heart (there was a history of previous rheumatic attack), severe bronchitis, free acid perspiration, and sudamina. Urine not albuminous.

Twenty grains of salicylate of soda were ordered to be given every two hours, and the joints and cardiac region were covered with lint dipped in belladonna liniment with a thick outer padding of cotton wool. Twenty doses (400 grains) of the salicylate were given. On the fifth day, at the time of the last dose, the temperature was 101·8°. The following notes were made on that day by Dr. Percy Smith, my most diligent and able house physician:—"Pulse 104, stronger; respiration 28; face flushed and rather dusky; eyes heavy. Slept badly from cough. Much wheezing in chest; no headache, no noise in ears, no pain in any joint, but feet and knees still swollen. Breathing harsh, vesicular, accompanied by the most intense rhonchus and coarse crepitation, obscuring completely the sounds of the heart. Apex of heart not displaced from former position (between fifth and sixth ribs in nipple line); pericardial dulness up to third left costal cartilage. Urine 1032, copious pale lithates, an increasing quantity of albumen, copious salicylic reaction." Twenty drops of antimonial wine were now given every four hours in place of the salicylate, and the patient was dry cupped on the back.

By the 8th matters were not much improved, and the temperature was rising. The first bath was given at 11.30 p.m., temperature being 104·8°. The bath was reduced from 100° to 74° in twenty minutes, the patient's temperature falling to 100·6°. The next day the temperature did not exceed 103°, but the bronchitis continued, and some friction was heard in the left axilla; pulse 112; respiration 44; pericardial effusion diminishing; no pain in joints. The pericardial effusion, however, increased again on the 11th, and the temperature rose to 105°.

Second bath, February 11th, 5.30 p.m.—Bath 93° to 70° in

twenty minutes; patient 105° to 100°. Slept well afterwards and during night; cough much less troublesome; much less bronchitis next morning. Still loud pericardial friction; no pain in joints; pulse 104; respiration 36; temperature 99° at 8 a.m., 102·6° at 8 p.m.

On the 14th signs of pneumonic consolidation appeared at the left apex, and had by the 17th extended over the whole of the left lung, but the respiration was only 36, and the temperature did not exceed 102·2°. Iodide of potassium was prescribed. The signs of consolidation of the left lung continued, without indications of fluid in the pleura for a week and then clearing began.

On the 8th March the lung was quite clear, but pericardial friction was still present. Four grains of iodide of potassium were given with five grains of citrate of iron and quinine three times a day.

On the 15th March, irregular rise of temperature having occurred at night, and some pain being felt in the joints, salicylate of soda was given in fifteen-grain doses three times a day. This was continued for a week, but from the 20th onward the temperature was normal, pain was absent, and pericardial friction diminished. It had not quite ceased, however, when the patient, well so far as all after-results of the present attack were concerned, was presented.

The cases being so few in number are not at present discussed, our intention being to consider them in the next report, together with other cases of the kind occurring in the interval.

FURTHER REMARKS ON HYSTERO-EPILEPSY.

(*Continued from page* 102.)

By WILLIAM H. STONE, M.B., F.R.C.P.

Since the paper inserted in the earlier part of the present volume was sent to press important facts have come under the writer's notice, which render modifications and extension of the statements therein made essentially necessary. Foremost among these is the occurrence of a typical case, presenting every symptom described by Charcot, in the person of an otherwise healthy girl of thirteen years old. This I have already published in the columns of a medical periodical, from which the following account is extracted :—

Case 7.—Harriet R—, æt. 13, servant, was admitted on June 24th, 1880. It was stated that she had enjoyed perfect health, with the exception of the usual childish disorders, until three weeks before admission, when she fell downstairs on her head, which she hurt, and also sprained her ankle. She was not, however, insensible after the fall, nor did any nervous symptoms manifest themselves at the time. Four days after the fall, the catamenia appeared for the first time. Five days before admission (June 20), while she was reading

the account of a child-murder in the newspaper, a "fit" suddenly came on, which lasted a considerable time. A second occurred on the 22nd, and several more between that date and her being brought to the hospital. No further history could be obtained except that her father and mother, five brothers, and three sisters, were all alive and well—the father excepted, who was stated to be asthmatical. There was no suspicion of any mental trouble or derangement, nor had she been of an excitable temperament.

On admission she was a particularly ruddy, stout, muscular, well-developed young woman, with large mammæ, looking several years above her real age.

Immediately on being placed in bed, at the time of Dr. Stone's visit, she had a series of fits, during which she remained apparently unconscious for about two hours continuously. The "fit," as it was termed by the relations, was of very remarkable character. It was not preceded by any cry, and commenced with a rapid oscillation of the head from side to side, with some occasional rotation of the body to a less extent. There was marked trismus; the arms were flexed and rigid, the fists tightly clenched, great force being required to open them. The legs were also rigid; the feet abnormally extended, and toes flexed over the soles, the latter forming a straight line with the calf of the leg, and the former projecting backwards, with a claw-like appearance. On raising the leg from the bed, the whole body followed in a piece, without any flexure of the hips or spine. In a few minutes the rotation ceased, and the back became arched, with marked opisthotonos of a clonic and discontinuous character, jerking the patient upwards from the bed several times in a minute, and causing her to rest on her heels and occiput. The eyes were closed, but she appeared partly conscious of what was going on around her. She seemed in no danger of falling off the bed, nor did she hurt herself by the spasmodic motions. The face became very flushed, but not livid. Dr. Stone immediately applied firm pressure to both ovarian regions, forcing his clenched fists with his full strength into both hypogastria. This instantly stopped the access. It was subsequently found that the symptoms could be brought to an end abruptly, either in the

rotatory or opisthotonic stage, by this manœuvre, although they often, but not always, recurred on its cessation. The urine and fæces were not passed during the fit, nor was the tongue bitten. Foam appeared at the mouth towards the end of the convulsion, when the patient lay still for a few moments with closed eyes, but the spasm recommenced on her being spoken to. During the whole attack there was complete anæsthesia of both arms, but marked flinching and exaggerated reflex action on the slightest touch on either leg, which amounted to hyperæsthesia.

June 26th.—For the last two days she has had three or four attacks daily, the average duration being of about an hour each. In the interval she answers questions rationally and pleasantly, exhibiting a cheerful, good-tempered aspect, and smiling readily. Complains of no pain or inconvenience whatever. She was now discovered to have complete anæsthesia of both arms, even to severe pricking. Great reflex action was, however, produced by pricking the legs and she instantly lapsed into an access. During this fit she put out her tongue when asked to do so, made a sort of hiccough for several seconds, and then began to rotate her head from side to side. Pressure over one ovary stopped the movements at once. At 3 p.m. on the same afternoon she was found to be totally anæsthetic all over the head, neck, and upper extremities. The trunk also was affected as low as the pubes in front, and to the mid-dorsal region behind. Elsewhere, especially over the back and on the soles of the feet, there was marked hyperæsthesia.

On this day Dr. Bristowe appended the following note:—"When I saw the patient yesterday afternoon she at first spoke to me, but soon ceased to reply, and began to rotate her head gently, keeping her eyes fixed on me, and following me with them wherever I went. The rotatory movements of the head gradually became more severe, and were attended by violent movements of the arms. The left arm for the most part worked backwards and forwards like a flail; the right executed rotatory movements like a windmill. The movement varied to some extent in both arms. The hands were clenched. On pressing the ovaries, or even one of them, the movements immediately ceased, and recurred when pres-

sure was discontinued. Pouring cold water over the face made her skrink and close her eyes, but had no beneficial effect. Feet were extended, and toes strongly flexed." (*Here is a slight sketch of the claw-like appearance described above.*)

27th.—There is now a patch of sensitivenes in the upper part of the left side of the neck. The right leg remains hyperæsthetic; the left is completely anæsthetic. "There is anæsthesia over the greater part of the neck, arms, and trunk. Some feeling in the lips and nose. Can taste well with both sides of the tongue. Over the right leg complains even if lightly touched." (*Added note by Dr. B.*)

28th.—Yesterday at 4.30 p.m. four gold pieces were placed on various points of the hyperæsthetic right leg and thigh, and attached with strips of plaster. This morning there is complete anæsthesia of the whole right leg, and sensitiveness of the left. There are also patches of sensitiveness over the nose, upper lip, and corresponding spots on both sides of the neck, along the sternum, and down to the umbilicus in the middle line, slight sensation also in a few localised points of the abdomen. Over a few of the dorsal vertebral spines there is sensitiveness, but above and below these anæsthesia. There is now for the first time some tenderness over the left ovary; none over the right. A few seconds after the last observation an attack occurred, in which the contemplative phenomena noted by Dr. Bristowe were very marked. The pupils were very dilated. This latter symptom had been noted before, but they were found to contract freely to the light of a candle (24th) even during an attack. No affection of special sensation.

30th.—No fits since 28th. An attempt to re-transfer the anæsthesia by means of sovereigns failed entirely. On placing her hand in hot water, she described it as cold, and cold water she considered warm. Her eyes were covered during this observation, which was followed by severe spasm, in which she knocked her head against the bedstead, but without ever injuring herself.

July 1st.—Dr. Stone, thinking it probable that repeated examination by this time might have put the patient on her guard, and roused an inclination to simulate, described

minutely the effects obtained by M. Charcot with magnets in her presence, intimating his expectation that the anæsthesia would be transferred. This was the first hint she had received, as all clinical observations had hitherto been made out of the ward, and the students had been enjoined strict silence in her presence. A magnet of eight large steel plates was placed in the bed beside the sensitive leg, and there left. It was, however, *non-magnetised*, and really only an inert piece of steel. On the following morning she answered clearly and with great simplicity "that it had done nothing at all; she did not know it was there." It was then taken away on some pretext, strongly magnetised by means of a powerful electro-magnet, and returned to the ward apparently unchanged on the 3rd.

7th.—On its being similarly applied, after magnetisation, the anæsthesia disappeared from the affected leg, but no alteration occurred in the other.

The chief points of interest of the case are, first, that the age, character, and simplicity of the patient precluded any suspicion of imposture; secondly, that singular precautions were from the first adopted to preclude the possibility of unconscious deception from the effect of "expectant attention;" thirdly, the marked and unequivocal effect of magnetism. To the last point I propose to return further on.

Another case of scarcely less importance is the following:

Rose O'C—, æt. 20, general servant, admitted into Christian Ward on June 15th, 1880.

She stated that she had been suffering from neuralgia since January, 1880. For this affection she had had five teeth drawn ineffectually; indeed, it had increased rather than diminished since the operation. It involved both sides of the face, and latterly also the shoulders and the upper part of the back. About six weeks previously she suffered from severe pains in the legs and feet, more acute at night.

On admission; she was a red-haired girl, of good nutrition, transparent complexion, nervous temperament, exceptional intelligence, and cheerful temper. The pains were referred to the shoulders, arms, and legs. The head pain was referred to the frontal region, not constant, but occurring in paroxysms.

Nothing amiss could be found in the chest, heart, or abdomen. Catamenia regular; temperature normal; urine 1010, clear, free from albumen. No swelling of any joints, but some tenderness over knees, and slight general cutaneous hyperæsthesia.

The principal symptoms, which were mainly subjective, were referable to the sense of sight, and were carefully investigated by Mr. Nettleship. It appeared that the defect of the left eye had been discovered one month. With that eye she read 16 Jaeger, and with it called all colours white. With the right eye she read 1 Jaeger and distinguished colours correctly.

On June 22nd she was more minutely examined by Mr. Nettleship in the eye department. The left pupil acted perfectly to direct stimulation, but she said all colours alike looked "white." She subsequently denied being able to see any light at all, but in the dark, with the right eye bandaged, she went up to the patients' chair as if she saw it, and often looked straight at the ophthalmoscope mirror. In spite of this she declared she could not tell where the light was, and after examination she groped her way out of the room, showing some apparent weakness of the left arm and leg.

On again testing the left eye with the right bandaged she had no perception of light, and tests for simulation gave no result. Vision and refraction of right eye quite normal, but field of vision much contracted in every direction, except outwards, where it extends to 60°.

24th.—She had complained of much pain, though somewhat vaguely as to its seat, and had slept well. On this day she noticed loss of power in the left arm and leg, which latter she dragged after her in walking. On pressure over any part of these limbs intense pain seemed to be produced.

On the 26th she denied the loss of power, though she still flinched on pressure.

On the 29th, after severe pain in both eyes, sight suddenly returned to the left eye.

30th.—Has much improved both as to vision and pain and weakness in left arm and leg, but still drags the foot, and has pain when the arm is lifted. Vision.—R., as before, is

normal. L. $\frac{20}{50}$, slight hypermetropia, corrected $\frac{20}{30}$. Reads 6 Jaeger fairly; colours perfect.

July 6th.—Vision of each eye normal, but apparently slight weakness of accommodation in L. Fields of vision, however, much contracted in each eye (on perimeter outwards 30°, up and down 15° each, in 10°).

On the 10th she was found to have almost complete anæsthesia of both legs with the exception of the soles of the feet. The same condition affected both arms with the exception of a few isolated patches. There was some tenderness over the right, but none over the left ovary. She had had a distinct hysterical attack since the last notes, in the course of which she laughed and cried causelessly, but did not lose consciousness.

On the 11th colour-vision was normal.

On the 13th she had an attack of headache in which she clutched at her hair, buried her head in the pillow, and seemed in great pain, but had no hysterical symptoms. All signs of abnormal innervational disorders having disappeared she was discharged cured on the 22nd.

Within a few days of her discharge a lady called on me stating that she had taken her into service as a housemaid, and liked her much, but that she suddenly developed a propensity to theft. All sums of money left about within her reach disappeared. She had not been openly taxed with the abstraction, and I agreed to readmit her with a view to ascertain whether it was a simple instance of depravity, or in any way connected with morbid impulse and so-called kleptomania.

The latter of these narratives (Case 8) is chiefly remarkable as showing the involvment of nerves of special sense in hysterical ailments, and as confirming to considerable extent recent statements respecting the state termed Achromatopsy.

The former (Case 7) offers the most trustworthy evidence which has hitherto come under my personal observation of the influence of the magnetic field on ordinary sensation. It is materially strengthened, moreover, by an interesting communication from Dr. Julius Dreschfield, in the 'British Medical Journal' of August 14th, in which he shows the efficacy of the same great physical power in non-hysterical cases. Another

valuable contribution to the physiology of the subject is contained in the 'Journal of Anatomy and Physiology' for January, 1879, from the pen of Prof. M'Kendrick, in which he demonstrates the fact that "a portion of nerve stretched between the poles of an electro-magnet, so as to touch each, will not excite contractions in a muscle when touched by a copper wire during the passage of the current through the wire of the electro-magnet."

It is to be regretted that neither of these last writers afford any quantitative clue to the intensity of the magnetic field employed. Judging from the proved phenomena of diamagnetism and those of the action on light the field should be of considerable strength, but whether it acts most when diffused or when concentrated requires further investigation. The unilaterality of nervous functional conditions certainly points to the hypothesis already named of equilibrium more or less stable between the two halves of the nervous system, like that of a duplexed cable. This is also confirmed in a physical point of view by the slow oscillations of transferred sensibility, which closely resemble those of a metronome pendulum in which the inert mass is large and the unequilibrated moving force proportionately small. A far less magnetic movement would also be competent to disturb such a system than one in more stable surroundings.

For farther experiments I have constructed a large electro-magnet wound with a helix of iron instead of copper wire. It developes a singularly spacious and regular series of curves even with a battery of moderate intensity. I propose also to excite it by means of a fine gramme machine which has recently come into my possession. Whether the results ultimately prove positive or negative, it is clear that a sufficient *primâ facie* case is made out for further investigation.

A NEW MEDICAL GALVANOMETER.

By WALTER J. KILNER, M.B.

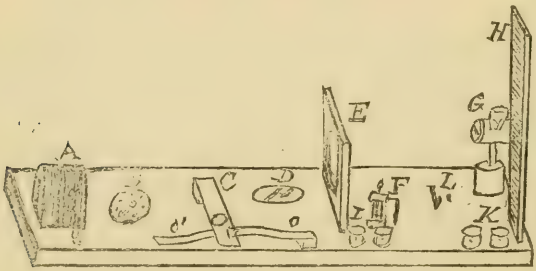
The instrument consists of a delicate galvanometer (A) wound with a fine copper wire, the resistance of which is 1000 ohms, or, if not quite the 1000 ohms, then an extra coil of wire is added to make up the deficiency and placed underneath the stand. The needles of the galvanometer are vertical and astatic, having jewelled bearings. Upon the axis of the needles is fixed a small mirror (*a*) to reflect the light from the lamp (G) upon the scale (H). The needles are weighted at the lower end so that a known current may give a certain deflection upon the scale. In the author's instrument the lowest value for each division of the scale is 25 microvebers, or $\frac{25}{1000000}$ of a veber, this being about the smallest quantity he can work with, although it is by no means the limit of the delicacy of the instrument.

In connection with the galvanometer is a series of shunts, which are inserted into or withdrawn from the circuit by means of a handle revolving round the dial (B), upon which there are studs and numbers to denote the value in microvebers each division of the scale. The bobbins of wire composing the shunts are let into the stand underneath.

C is the key for sending the current through the galvanometer at pleasure by simply pressing it down. When at rest it is in contact with the spring (*c*), and the current, instead of passing through the galvanometer, traverses a coil of wire, the resistance of which is exactly equal to that of the galvano-

meter. When, however, the key (C) is pressed down the current passes through the galvanometer by the spring (c'). In order to avoid any shock being given to the patient when the current is being diverted from the coil to the galvanometer, or *vice versâ*, it is arranged that the key (C) should touch the spring (c') before its contact with the spring (c) is broken, thus allowing, for an instant, the current to be transmitted at the same time by both the galvanometer and the coil. The shunts (B) are connected exactly in a similar way with the galvanometer and the balance coil, thus preventing any alteration in the strength of the current, whether the galvanometer is in circuit or not.

D, an ordinary current reverser, which is placed in the circuit in such a manner as to change the direction of the



current passing through the body of the patient, yet to allow the galvanometer needles always to turn in the same direction.

E is a double convex lens to condense the light from the lamp (G) upon the mirror (a). When not in use it can be turned down.

F is a small fluid regulator, which simply lifts in and out of its place at pleasure, and is used to vary within certain limits the intensity of the current. The plates are amalgamated zinc and the fluid a solution of sulphate of zinc. The plates may be made of copper; then the fluid ought to be a solution of sulphate of copper, but this arrangement is not quite as good as the former.

G, the lamp, is a modification of the small surgical lamp. It has a broad wick, no condensing lens, and the front is covered by a metal cap, with a horizontal slit in it, and

stretching across (lengthways) the middle of this slit is a fine wire.

H is the scale, which consists of 100 equal divisions, with the zero near the bottom. When not in use it turns down.

I, the binding screws for connecting the instrument with the battery, and K, the binding screws for the rheophores.

L is a switch for inserting into the circuit an extra known resistance, which is useful when measuring the conductivity of the body &c. The quantity is 3000 ohms.

When viewed in the engraving the instrument may seem complicated, but it is very simple in its action, as when required for use all that is needed is to light the lamp and put it into its position, turn up E and H, and fit (F) into its sockets. The light of the lamp then passes through the slit and is condensed by (E) upon the mirror (*a*) by which it is reflected on to the scale (H), where a real image of the wire is formed in the middle of the bright spot at zero. Whenever the operator wishes to know the strength of the current he is using, all he has to do is to press down the key (C) and the amount is immediately registered upon the scale in microvebers, each division having a value equal to the number marked near the stud of the dial (B), upon which the handle is placed. The author's instrument has the shunts 25, 50, 100, 150, 200, 250 microvebers for each division of the scale. The reason why he rejects the decimal notion is to obtain as accurate a measurement of the current as possible, especially for diagnostic work.

The chief advantages claimed for this instrument are that, being a mirror galvanometer it is very sensitive, and although delicate in its action it can be used at the bedside, and because the needles are vertical no adjustment is necessary on account of the magnetic meridian. 2ndly. That the needles come to rest almost instantaneously, and no time is lost by their oscillating. 3rdly. The long range of the scale and the practical equality of the divisions, as the needles only move through a very small arc. 4thly. The resistance of the galvanometer being only 1000 ohms it makes the calculation of the resistance of the body an easy matter. Lastly, when used for diagnosis the quantity of electricity required for each nerve or muscle is absolutely determined, and that (if desired)

to compare the quantity required for each nerve or muscle of the other side of the body, the errors arising from the skin at the two points being unequally moistened, and more especially, as is usually the case in disease, from the unequal resistance of the two sides of the body, are obviated.

The above-described instrument was made by Mr. W. Groves, 89, Bolsover Street, and with slight modifications, according to circumstances, similar instruments can be made to fit any portable battery.

REPORT OF

THE OBSTETRICAL DEPARTMENT

FOR 1879.

By ROBERT CORY, M.A., M.D.

The Resident Accoucheurs for the year were Messrs. H. U. Smith, W. H. Battle, Kanchiro Takaki, and Charles Shephard.

From the 1st of January, 1879, to the 31st of December, 1879, both dates inclusive, 2024 women were attended. Of these, 2007 resulted in single births, 16 in twins, and 1 was a triplet birth. There were 10 cases of abortion among the single births.

In the following table the presentations of the children are classified:

	Among the 2007 single births.	Among the 16 cases of twins, and 1 case of triplets.	Total.
Vertex	1945	22	1967
Breech	29	8	37
Superior extremities, including the shoulder	5	1	6
Head and arm	5	0	5
Inferior extremities	8	4	12
Mixed, in which both inferior and superior extremities presented	2	0	2
Face	3	0	3
Abortions	10	0	10
			2042

Of the 2024 cases attended,

283	were 1st labours.	57	were 10th labours.
338	„ 2nd „	27	„ 11th „
306	„ 3rd „	11	„ 12th „
276	„ 4th „	6	„ 13th „
203	„ 5th „	5	„ 14th „
178	„ 6th „	3	„ 15th „
143	„ 7th „	3	„ 16th „
106	„ 8th „		
74	„ 9th „	2019	

In 5 cases the number of confinements is not stated.

The following table shows the number of women confined at each consecutive year of life; the youngest mother being 16, and the oldest 48 years of age.

At the age of.	No. of women confined.	At the age of.	No. of women confined.
16	1	33	75
17	2	34	63
18	31	35	64
19	52	36	63
20	82	37	53
21	102	38	53
22	118	39	41
23	111	40	39
24	132	41	13
25	132	42	17
26	112	43	11
27	120	44	8
28	122	45	3
29	117	46	0
30	121	47	0
31	65	48	1
32	88		2012

In 12 cases the age of the mother is not stated.

THE FORCEPS were used in 48 cases. The reasons given for their use may be tabulated as follows:

Delay at the brim of the pelvis	14	6 from contracted pelvis. 2 „ large heads. 1 „ faulty position of head. 5 „ causes not stated.
Delay at the outlet	13	
Tedious labours	14	
Delay of after-coming head	2	

Convulsions	1
Prolapse of cord	1
Placenta prævia	1
Umbilical hernia	1
Dead child	1
	48

There were 15 cases of primipara among the 48 forceps cases. This gives a percentage of 31·25 per cent.; the general percentage of primipara among the total 2024 cases being only 13·9.

Rupture of the perineum took place in 14 out of the 48 cases, and in one other case parametritis followed. 9 of the 14 cases in which rupture of the perineum took place were primipara.

In 7 of the forceps cases instrumental assistance had been given in previous labours. Of the 48 children delivered with forceps, 7 were stillborn, 1 died 2 days after birth, and 1 had facial paralysis. There were, however, only 2 stillbirths in the uncomplicated forcep cases.

Cases of Version.

Podalic version was resorted to in 9 cases (among the single births) for the following reasons:

		No. of children still-born.	No. of children that died within 24 hours of birth.
Presentation of the superior extremities, including the shoulder	4	1	2
Presentation of both extremities	2	0	0
Placenta prævia	2	1	0
Prolapsed funis	1	1	0

Cephalic version was resorted to 3 times.

For presentation of superior extremities, including the shoulder	2	0	0
For prolapsed cord	1	1	0

It will be seen that among the 12 cases of version, 4 children were stillborn, and 2 died within 24 hours of birth.

Placenta prævia.

There were 4 cases of placenta prævia among the single births, the particulars of which are stated in the table below:

No.	Age.	Confinement.	Sex.	Result to Child.	Whether placenta prævia was partial or complete.	Treatment.	Result to Mother.
873	23	3	F.	Still-born	Central	Separation of placenta	Recovery.
1392	29	7	F.	Good	Partial	Rupture of membranes; version	,,
1489	38	6	M.	Still-born	,,	Rupture of membranes; forceps	,,
1901	24	4	F.	,,	Central	Separation of placenta; version	,,

The Breech presented in 29 cases among the single births, which gives a proportion of 1 in every 69 such births. In 7 of these cases the children were still-born, which is equivalent to a death-rate of 24·1 per cent.

Perchloride of Iron was only once injected into the uterus during the year for the purpose of stopping hæmorrhage. This was in case 990. The woman was 42 years of age, and had had 9 previous confinements. She was delivered on the 21st June of a premature still-born female child without difficulty, but there was subsequent alarming post-partum hæmorrhage, which was effectually controlled by the injection of a solution of perchloride of iron, 1 part of Liq. Ferri Perchloridi Fortior to 6 of water. The woman made a good recovery.

Hot Water injections into the uterus at temperatures varying from 115° Fahr. to 120° Fahr. were used in 4 cases for the purpose of arresting hæmorrhage. They were successful in every case, and the women made good recoveries.

Only 1 Maternal death occurred during the year. This gives an exceptionally low death-rate of ·05 per cent. The particulars of the case are given at the end of this report.

Of the Children.—The number of children born among the 2024 women attended during the year was 2042; there being 16 cases of twin births, and 1 case of a triplet birth. Of

these 1008 were males, and 1026 females; the sex is not stated in 8 cases.

There were 90 cases of still-birth, which gives a proportion of 1 still-birth in every 22·6 births, or a percentage of 4·4 still-births among the 2042 children born.

The characters of the labours in which the still-births occurred are given below:

	No. of children still-born.
Natural labours, including cases of intra-uterine maceration	42
Premature labours	11
Abortions	10
Uncomplicated forceps cases	2
Presentations of upper extremities	3
Presentation of lower extremities	2
Breech presentations	7
Plural births	5
Placenta prævia	3
Prolapse of cord	4
Malformed child (forceps)	1
	90

The following table gives particulars of the cases of twin births:

No.	Age.	No. of Confinements.	Date of Birth.	Sex. 1st.	Sex. 2nd.	Result to Mother.	Result to Child. 1st.	Result to Child. 2nd.	Presentations. 1st Child.	Presentations. 2nd Child.	Condition of Placenta.
966	34	10	Jan. 13	M	M	R	L	L	Breech	Breech	Not stated.
1184	38	7	Jan. 16	M	M	R	D	L	Feet	Head	,,
33	28	3	Jan. 31	M	F	R	L	L	Head	Feet	,,
89	29	2	May 10	M	M	R	L	D	Knees	Shoulder	Separate.
127	45	10	Feb. 9	M	M	R	L	L	Head	Head	Not stated.
134	37	7	June 25	M	F	R	D	L	,,	,,	,,
309	39	6	March 22	M	F	R	L	L	,,	,,	Separate.
325	29	8	April 21	M	M	R	L	L	,,	,,	Single.
383	32	2	May 3	M	F	R	L	L	,,	Feet	Not stated.
758	32	5	June 13	M	M	R	L	L	,,	Head	Single.
767	34	7	June 2	F	F	R	L	D	,,	,,	Not stated.
801	30	14	June 21	F	M	R	L	L	,,	Breech	Separate.
1490	40	10	Nov. 13	M	F	R	L	L	,,	,,	Single.
1544	29	3	Oct. 28	M	F	R	L	L	Breech	,,	Separate.
1632	26	2	Nov. 29	F	F	R	L	L	Head	,,	Single.
1858	20	1	Dec. 29	F	F	R	L	L	,,	,,	,,

The placenta were separate in 4 cases, single in 5; in 7 the condition is not stated.

The children were—

In 6 cases, both males;
„ 3 „ „ females;
„ 6 „ male and female.

One case, No 1391, was a triplet birth which occurred on the 22nd November at full term. The woman was 37, and had had 8 previous confinements. The children were 2 males and 1 female, one of the males being still-born. The head presented in each case. There were 2 placentæ.

There were two cases of malformation among the children reported during the year, one a case of spina bifida, the other a case of hydrocephalus.

Case of Maternal Death.

1754. Mary P., æt. 33, had had six children, only two of whom—the first and third—lived, the others died in infancy. Her father and uncles were said to have all died of consumption. She herself is said to have been addicted to drink.

On the 11th December she was taken suddenly ill, and complained of shortness of breath and sore throat; she also vomited several times.

On the 14th her labour came on, and the obstetric clerk who attended her noticed that her lips were then covered with sordes, that she was very thirsty, and that her skin was hot. She seemed to have some pain over the epigastrium and left hypochondriac region, but this was not severe. She had no cough or expectoration. She was delivered of a living male child, and the labour was natural.

On the 15th a rash was noticed by the nurse on both arms, but nowhere else, resembling urticaria; her bowels were constipated, and she occasionally vomited.

Early on the morning of the 16th she became delirious, and died at 8 a.m.

At the post-mortem examination the right lung was adherent, especially towards the base, from old disease. The bronchial mucous membrane of both lungs was intensely injested, and a frothy blood-stained mucus could be pressed out from the cut orifices of the bronchial tubes. Both lungs were crepitant throughout. The capsules of the kidneys were somewhat adherent, and a cyst was present on the surface of the left. There was no peritonitis. The other organs were apparently normal.

The uterus weighed 645 grains.

MEDICAL REPORT.

MEDICAL REPORT.

1879.

By WALTER BAUGH HADDEN, M.D. Lond.,
MEDICAL REGISTRAR.

PREFACE.

Considerable alterations have been made in the statistical portion of the Medical Report. The column of age has been extended, so that useful statistics may be drawn, if necessary, at any future time. An attempt has been made to give approximately the duration of each patient's disease before admission, and of each patient's duration of residence in the hospital. A table showing the mortality of each class of disease at different ages, and the rate per cent. in those which admit of satisfactory conclusions being deduced, has also been added.

Several cases, presenting points of peculiar interest, have been given in detail.

Table I.—*General Statement of Medical and Surgical Patients.*

	Males.	Females.	Total.
Number of patients in Hospital, Jan. 1st, 1879	... 188	... 197	... 385
„ „ Dec. 31st, 1879	... 174	... 169	... 343

Number of patients discharged or died during 1879 :

Cured	...1007	... 921	... 1928
Relieved...	... 447	... 478	... 925
Unrelieved or other causes ...	... 66	... 74	... 140
Died	... 210	... 148	... 358
	1730	1621	3351

Average number of days of each medical patient's stay in hospital—39·7.
Do. do. surgical do. 40.

Table II.—*General Medical Statement.*

Number of Medical Beds 191

	Males.	Females.	Total.
Number of patients in Medical Wards, Jan. 1st, 1879 ...	83	93	176
„ „ admitted during the year 1879 ...	583	668	1251
Total	666	761	1427
„ „ in Medical Wards, Dec. 31st, 1879 ...	62	73	135
„ „ treated to a termination during 1879	604	688	1292

„ „ discharged or died during 1879:

	Males.	Females.	Total.	Rate per cent.
Cured	235	302	537	41·56
Relieved	195	253	448	34·67
Unrelieved or other causes ...	44	37	81	6·27
Died	130	96	226	17·5
	604	688	1292	100·0

Average number of days of each patient's stay in hospital—39·7.

TABLE III.—

DISEASE.	Number of cases.			Age.								Duration before admission.							
	Total.	M.	F.	Under 5	5–10	10–20	20–30	30–40	40–50	50–60	Above 60	Dys 1–1	Dys 2–1	Wk. 2–4	Mts. 1–2	Mts 2–6	Mts. 6–12	Chronic.	Not
I. SPECIFIC FEBRILE DISEASES.																			
Rötheln	12	2	...	...	1	...	1	...	...	...	...	2	...	...	...	...	...	...	
Measles	8	5	3	7	...	1	...	...	...	...	...	8	...	...	...	...	...	...	
Variola	3	3	...	...	...	1	1	...	1	...	...	3	...	...	...	...	...	...	
Varicella	2	1	1	1	1	...	...	...	...	...	...	2	...	...	...	...	...	...	
Parotitis	2	2	...	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	
Scarlet fever	23	6	17	6	9	3	4	1	...	...	...	13	5	2	...	...	...	...	
Sequelæ of scarlet fever	7	4	3	3	2	2	...	...	...	...	...	2	4	...	1	...	...	...	
Typhus	6	4	2	1	1	1	3	...	...	...	...	3	3	...	...	...	...	...	
Enteric	83	43	10	6	15	32	23	4	2	1	...	10	43	24	1	1	...	...	
Febricula	5	2	3	...	3	...	2	...	...	...	...	1	2	1	...	...	...	...	
Syphilis	3	1	2	1	1	...	1	...	...	...	...	...	...	...	...	...	...	3	
Intermittent	2	1	1	...	...	...	2	...	...	...	...	...	1	...	...	...	...	1	
Diphtheria	18	9	9	9	7	1	1	...	...	...	...	9	3	...	...	...	...	...	
Sequelæ of diphtheria	3	2	1	1	1	1	...	...	...	...	...	...	2	1	...	...	...	...	
II. DISEASES OF SKIN.																			
Erysipelas	10	6	4	...	1	4	...	1	4	...	...	3	4	2	...	...	...	...	
Erythema	1	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	
„ nodosum	2	...	2	...	...	1	...	...	1	...	...	...	1	1	...	...	...	...	
Desquamation	1	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	
Acute eczema	3	1	2	...	...	...	2	1	...	...	...	...	2	...	1	...	...	...	
Chronic „	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	
Psoriasis	2	...	2	...	...	1	1	...	...	...	...	...	...	...	...	...	...	2	
Ichthyosis	2	1	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	2	
Pemphigus	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	
Echthyma	1	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	
Noma	1	...	1	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	

General Table of Diseases.

Duration of residence.								Cured.		Relieved.		Unrelieved.		Died.		REMARKS
1 week.	Wks 1–2	Wks 2–4	Mts 1–2	Mts 2–4	Mts. 4–6.	Mts. 6–9	Mts. 9–12	Above 1 year	M.	F.	M.	F.	M.	F.	M.	F.	
..	1	1	...	...	...	...	...	...	2	...	...	...	...	...	...	...	1 was transferred from surgical ward.
..	...	6	2	...	...	...	...	...	4	3	...	...	...	...	1	...	7 were transferred from other wards.
2	...	1	...	...	...	...	...	...	1	...	...	...	1	...	1	...	1 case was confluent, 1 hæmorrhagic, and 1 discrete.
..	...	2	...	...	...	...	...	...	1	1	...	...	...	...	...	...	
..	2	...	...	...	...	...	...	...	2	...	...	...	...	...	...	..	In 1 case there was collapse and loss of consciousness on admission.
1	1	4	12	5	...	...	...	...	4	17	...	...	...	...	2	2	1 was transferred from medical wards, 1 was a house surgeon, and 1 a nurse.
..	...	3	3	...	1	...	...	...	3	3	1	...	...	...	...	..	5 were cases of albuminuria, 1 of glandular enlargement and albuminuria, and 1 of rheumatism with pleurisy and pericarditis.
..	2	...	2	2	...	...	...	...	2	2	...	...	...	...	2	..	
1	4	10	50	16	2	...	...	...	41	35	...	...	...	...	2	5	3 cases were contracted in the hospital, 2 of which died; 1 case was complicated with tubercular meningitis, 1 patient was said to have had a previous attack, and in 1 there was a suspicion of typhus.
..	1	1	3	...	...	...	...	...	2	3	...	...	...	...	...	...	1 case was probably the end of enteric fever.
..	...	...	...	2	...	...	...	1	...	1	1	1	..	...	...	...	2 were congenital and 1 acquired.
..	1	...	1	...	...	...	...	...	1	...	...	1	...	...	...	...	1 was contracted in London, and on admission was supposed to be enteric fever.
7	3	4	4	...	...	...	...	...	6	5	...	...	...	...	3	4	2 of the cases were contracted in the hospital.
..	2	...	...	1	...	...	...	...	...	...	2	1	...	...	...	...	2 of the cases belonged to the same family.
..	2	6	2	...	...	...	...	...	6	4	...	...	..	...	...	...	1 was a hospital "sister," 9 cases were facial, 1 affected the scalp only.
..	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	
..	...	2	...	...	...	...	...	...	...	2	...	...	...	...	...	...	
..	...	1	...	...	...	...	...	...	1	..	...	...	...	...	...	...	Probably due to erythema.
..	...	1	2	...	...	...	...	...	1	2	...	...	...	...	...	...	2 patients had had previous attacks.
..	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	Treated with jaborandi.
..	...	...	1	...	1	...	...	...	...	1	...	1	...	...	...	...	Both had chrysophanic acid locally.
..	...	...	1	...	...	1	...	...	...	...	...	2	...	...	...	...	Both cases were congenital; 1 contracted measles in the hospital.
..	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	Contracted measles in the hospital.
..	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	Sequela of scabies.
..	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	Followed after an attack of measles.

TABLE III—

DISEASE.	Number of cases.			Age.								Duration before admission.							
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts 6–12	Chronic.	Not.
III. DISEASES OF THE RESPIRATORY ORGANS.																			
Acute laryngitis	6	...	6	3	...	...	2	1	...	...	...	2	...	2	1	...	...	...	
Chronic „	2	1	1	...	...	...	...	...	1	1	...	...	...	...	1	1	...	...	..
Phthisis	63	41	22	...	3	11	16	20	8	3	2	1	2	...	10	19	3	22	
Hæmoptysis	4	3	1	...	...	...	1	2	1	...	...	4	...	...	...	...	...	...	..
Acute bronchitis	9	4	5	3	1	1	2	...	2	...	...	5	1	1	...	...	...	...	
Chronic bronchitis and emphysema	60	37	23	...	...	3	4	15	15	14	9	...	8	13	14	7	3	8	
Broncho-pneumonia	8	8	...	6	...	1	...	1	...	...	...	3	1	...	...	1	...	...	
Acute pneumonia—																			
Right	20	13	7	1	...	5	5	5	3	1	...	8	7	4	...	...	...	...	
Left	18	15	3	1	4	1	3	5	2	1	1	6	6	2	...	...	...	...	
Double	9	6	3	3	1	1	3	1	...	...	...	4	2	3	...	...	...	...	..
Right pleurisy	11	5	6	...	1	2	2	3	1	...	2	...	5	3	2	...	...	...	
Left „	7	5	2	1	1	2	2	1	...	...	...	1	1	1	1	1	...	...	
Empyema	5	4	1	1	...	1	1	...	2	...	...	...	...	1	3	1	...	...	..
Pulmonary congestion	2	2	...	...	...	...	1	...	...	...	1	...	...	...	2	...	...	...	..
Mediastinal tumour	1	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	..
IV. DISEASES OF THE VASCULAR SYSTEM.																			
1. *Heart.*																			
Fatty degeneration	2	2	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	2	..
Palpitation	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	..
Malformation	9	6	3	...	2	5	...	2	...	...	...	...	...	...	...	...	...	9	..
2. *Valvular disease.*																			
Mitral	44	8	36	...	...	9	10	7	11	4	3	1	...	2	1	10	4	23	
Aortic	8	6	2	...	...	...	...	3	3	1	1	...	...	1	2	1	...	3	
Mitral and aortic	21	12	9	...	1	5	2	4	4	3	2	...	...	2	...	1	6	9	
3. *Vessels.*																			
Aneurysm	16	14	2	...	...	...	2	3	5	6	...	...	...	...	1	2	6	4	
Degeneration of arteries	1	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	

continued.

Duration of residence.									Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
1 week.	Wks. 1–2	Wks. 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above 1 year.	M.	F.	M.	F.	M.	F.	M.	F.	
..	1	3	2	...	...	...	...	...	...	6	...	...	...	...	...	...	Tracheotomy in 2 cases, 1 case was a readmission.
..	...	...	1	1	...	...	...	...	...	...	...	1	1	...	...	...	Both probably syphilitic.
8	9	19	19	6	2	...	...	...	...	1	21	14	1	...	19	7	
..	...	3	1	...	...	...	...	...	3	1	...	...	...	...	...	...	All the cases probably phthisical.
1	2	4	...	2	...	...	...	...	3	4	...	1	...	...	1	...	1 case was complicated with emphysema.
3	13	23	15	4	2	...	...	...	17	7	14	9	1	...	5	7	There were 3 cases of readmission.
2	4	2	...	...	...	...	...	...	4	...	...	...	...	...	4	...	1 case was complicated with laryngitis and 1 with meningitis.
5	3	6	5	1	...	...	...	...	8	6	2	...	...	...	3	1	In 1 case there was delirium tremens.
3	4	8	3	...	...	...	...	...	12	3	...	...	...	...	3	...	1 case was complicated with aortic disease and 1 with phthisis.
2	1	5	1	...	...	...	...	...	4	2	...	...	...	...	2	1	
1	...	5	4	1	...	...	...	...	5	4	...	1	...	...	...	1	In 1 case there was slight effusion into the left pleura.
.	...	3	4	...	...	...	...	...	3	1	2	...	...	1	...	...	
1	...	...	...	3	1	...	...	...	2	1	1	...	...	...	1	...	1 case was caused by an abscess in the thoracic wall.
.	...	2	...	...	...	...	...	...	...	...	2	...	...	...	...	...	1 was associated with an enlarged spleen.
.	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	Secondary growths in various organs.
1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	2	...	In both cases there was double pleuritic effusion.
.	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	Associated with hysteria.
1	4	1	3	...	...	...	...	...	...	...	4	2	1	...	1	1	1 case was a readmission; in 1 fatal case there was partial transposition of viscera.
3	8	11	8	11	3	...	...	...	...	...	6	28	...	1	2	7	There were 4 readmissions.
2	3	1	...	2	...	...	...	...	...	...	2	1	1	...	3	1	
5	5	6	3	2	...	...	...	...	...	...	7	3	1	...	4	6	1 case was a readmission.
.	2	3	2	3	2	3	...	1	...	...	4	1	2	...	8	1	14 were of the thoracic and 1 of the abdominal artery; 1 was innominate.
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	Brought in dead.

TABLE III—

DISEASE.	Number of cases.			Age.							Duration before admission.							
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts. 6–12	Chronic.	Not
IV. DISEASES OF THE VASCULAR SYSTEM—*continued.*																			
4. *Diseases of ductless glands and blood.*																			
Anæmia	9	...	9	...	...	3	4	2	...	...	...	1	...	1	1	4	1	1	..
Scurvy	1	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	..
Leucocythæmia	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	..
Lymphadenoma	6	5	1	...	1	1	1	1	1	1	...	...	...	...	1	...	...	2	..
Goître	3	...	3	...	...	1	...	1	1	...	...	...	...	...	...	1	...	2	..
Exophthalmic goître	3	1	2	...	...	...	2	1	...	...	...	...	...	...	...	...	...	3	..
Addison's disease	1	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	..
Myxœdema	5	...	5	...	...	...	...	2	...	2	1	...	...	...	...	...	...	5	..
V. DISEASES OF THE DIGESTIVE ORGANS.																			
1. *Alimentary canal.*																			
Stomatitis	1	...	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	..
Tonsillitis	6	1	5	...	...	1	5	...	...	...	...	2	3	1	...	...	...	...	..
Stricture of œsophagus	5	3	2	...	...	...	1	...	2	2	...	1	...	...	...	2	...	1	
Dysphagia	2	1	1	...	...	...	...	...	1	...	1	...	...	...	...	2	...	...	..
Chronic œsophagitis	1	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	..
Gastric catarrh	4	1	3	...	1	...	1	2	...	...	...	2	1	1	...	...	...	...	..
„ ulcer	13	2	11	...	...	2	7	...	4	...	...	1	...	...	1	4	4	3	..
Hæmatemesis	9	3	6	...	...	2	2	3	1	...	1	2	3	1	...	1	...	..	
Dyspepsia	19	6	13	1	...	5	5	4	2	1	1	1	1	1	...	5	3	6	
Carcinoma of stomach	12	7	5	...	...	...	...	1	4	4	3	...	...	...	1	3	8	...	..
Diarrhœa	2	2	...	1	...	...	...	...	1	...	...	...	...	...	...	2	...	...	..
Dysentery	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	..
Enteritis	1	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	..

continued.

Duration of residence.									Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
1 week.	Wks 1-2	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts 9-12	Above 1 year.	M.	F.	M.	F.	M.	F.	M.	F.	
...	...	4	4	1	...	...	...	...	...	8	...	1	...	...	...	...	
..	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	Contracted on land.
..	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	
..	...	2	1	1	1	1	...	...	...	...	5	1	...	...	...	...	1 case was doubtful.
...	1	1	1	...	...	...	...	...	...	...	...	3	...	...	...	...	
...	...	1	1	1	...	...	...	...	...	...	1	2	...	...	...	...	
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	Associated with phthisis.
...	1	...	...	3	1	...	...	...	...	...	...	4	...	...	...	1	
...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	Associated with mitral disease.
...	4	2	...	...	...	...	...	...	1	4	...	1	...	...	...	...	In 1 case there was a suspicion of scarlet fever.
2	...	2	...	1	...	...	...	...	...	1	1	...	...	...	2	1	3 cases were malignant and 2 spasmodic.
...	1	1	...	...	...	...	...	...	1	...	...	1	...	...	...	...	1 case was due to pressure by a retro-pharyngeal abscess, and 1 to pressure of a tumour in the neck.
...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	Complicated with emphysema and cirrhosis of kidneys.
...	2	...	1	1	...	...	...	...	1	1	...	2	...	...	...	...	1 case was due to alcohol; in 1 there was catarrh of the œsophagus.
1	...	3	5	3	...	1	...	...	1	5	...	4	1	1	...	1	1 case was transferred to "Adelaide." In the fatal case perforation took place.
...	2	4	3	...	...	...	...	...	1	5	...	1	2	...	...	...	1 case was a readmission.
4	3	9	2	1	...	...	...	...	1	7	3	4	2	2	...	...	2 cases were complicated with incipient phthisis and 1 with hysteria.
1	1	2	5	2	1	...	...	...	...	...	2	1	1	...	4	4	1 case was a readmission, in 5 cases the peritoneum was secondarily involved, in 2 the liver was affected, in 1 there was acute peritonitis, in 1 pachymeningitis, and in 1 cystic kidneys.
...	...	...	...	2	...	...	...	...	1	...	...	...	...	...	1	...	1 case was probably dysenteric; in the fatal case, that of a child, there were no marked pathological appearances.
...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Complicated with peritonitis and pelvic abscess.

TABLE III—

DISEASE.	Number of cases.			Age.							Duration before admission.							
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts 1–2	Mts 2–6	Mts. 6–12	Chronic.	Not
V. DISEASES OF THE DIGESTIVE ORGANS—*continued.*																			
1. *Alimentary canal.*																			
Colic	2	1	1	...	...	2	...	...	...	...	...	1	...	...	1	...	...	...	..
Constipation	9	5	4	..	1	2	1	3	2	...	...	1	1	3	3	1	...	...	..
Intestinal obstruction	12	9	3	1	1	...	2	...	1	3	4	1	1	...	1	4	1	4	..
Typhlitis and perityphlitis	7	4	3	...	...	...	3	3	1	...	...	...	2	2	2	...	1	...	..
2. *Peritoneum.*																			
Acute peritonitis	3	2	1	...	...	...	1	1	...	1	...	1	1	1	...	...	...	...	..
Chronic „	12	3	9	...	1	6	5	...	...	...	...	...	1	4	...	1	1	4	1
3. *Liver.*																			
Cirrhosis	25	16	9	2	...	...	3	5	4	9	2	...	...	2	4	7	4	6	2
Cancer	1	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...
Abscess	4	4	...	...	...	...	...	...	3	1	...	...	...	...	...	...	...	1	3
Hydatid	3	1	2	...	...	2	...	...	...	1	...	...	...	...	...	...	1	2	...

continued.

Duration of residence.									Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
1 week.	Wks 1-2	Wks 2-4	Mts 1-2	Mts. 2-4	Mts. 4-6	Mts 6-9	Mts. 9-12	Above 1 year.	M.	F.	M.	F.	M.	F.	M.	F.	
...	1	...	...	...	1	...	...	...	1	1	...	...	...	...	...	...	In 1 case there were signs of fluid in the peritoneum.
..	3	4	1	1	...	...	...	...	2	1	3	3	...	...	...	...	In 1 case there was retroversion of the uterus, and in 1 hysterical aphonia.
3	2	3	3	...	1	...	...	...	...	...	2	1	..	1	7	1	In 9 cases there was malignant disease of the bowel, in 1 inflammatory stricture of small intestine, in 1 intussusception, and in 1 probably internal strangulation.
..	...	3	1	2	1	...	...	...	4	2	...	1	...	...	...	...	
..	1	1	..	1	...	...	...	...	1	...	...	...	...	1	1	...	1 was complicated with aortic disease, 1 with hæmatemesis, and 1 was localized to right inguinal region.
1	1	...	4	3	1	1	1	...	...	2	1	6	1	1	1	...	10 cases were tubercular, 2 were non-tubercular and localized; phthisis was present in 2 cases, pleurisy and pericarditis in 1, and in the fatal case there was caries of the spine with psoas abscesses.
3	1	9	5	5	...	1	1	...	...	...	6	4	5	...	5	5	3 cases were readmissions, 3 were complicated with cirrhosis of kidneys, 1 with pericarditis and mitral disease, 1 with right hemiplegia, 1 with phthisis, 1 with adherent pericardium, 1 with tubercle in liver and pleuræ, 1 with acute peritonitis, and 1 with tubercular peritonitis and pericarditis.
...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	Complicated with peritonitis, pericarditis, pulmonary apoplexy, cirrhotic kidneys, and gout.
...	1	3	...	...	...	...	...	...	...	...	2	...	...	...	2	...	1 case was a readmission. In 1 fatal case there was dysenteric ulceration of the intestine, and the other was complicated with pulmonary abscess and acute peritonitis.
...	...	...	1	2	...	...	...	...	...	...	...	2	...	...	1	...	1 case was a readmission. In the fatal case there was intense jaundice, the cyst having opened into the biliary passages.

TABLE III—

DISEASE.	Number of cases.			Age.								Duration before admission.						
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts. 6–12	Chronic.	Not
V. DISEASES OF THE DIGESTIVE ORGANS—*continued.*																			
3. *Liver.*																			
Enlarged liver	2	1	1	...	...	...	...	1	1	...	...	...	...	...	...	1	...	1	..
Obstructive jaundice	13	4	9	...	...	...	2	2	4	3	2	...	...	2	4	3	2	2	..
4. *Tumours, &c.*																			
Abdominal tumour	2	...	2	...	...	...	...	...	1	1	...	...	...	...	...	...	1	1	..
„ cyst	3	3	...	...	...	...	2	...	...	1	...	...	...	...	...	1	1	1	..
„ abscess	2	1	1	...	...	1	...	1	...	...	...	...	...	1	...	...	1	...	..
VI. DISEASES OF THE GENITO-URINARY ORGANS.																			
Acute nephritis	9	5	4	...	...	3	4	2	...	...	...	2	2	3	2	...	...	...	..
Chronic nephritis	42	22	20	...	1	3	13	2	12	5	5	...	1	6	9	6	7	10	3
Pyelitis	3	2	1	...	...	1	...	2	...	...	...	...	...	...	...	...	...	3	..
Renal colic	3	2	1	...	...	...	...	2	...	...	1	...	...	...	...	1	...	2	..
Malignant disease of kidney	1	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	
Movable kidney	1	...	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	..
Oxaluria	1	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	..
Cystitis	1	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	..
Incontinence of urine	1	...	1	...	...	...	...	...	1	...	...	. .	...	...	...	...	1	...	..
Diabetes	7	6	1	...	...	1	4	1	...	...	1	...	...	...	...	1	2	4	..

continued.

Duration of residence.									Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
Under 1 week.	Wks 1–2	Wks 2–4	Mts. 1–2	Mts 2–4	Mts 4–6	Mts. 6–9	Mts 9–12	Above 1 year.	M.	F.	M.	F.	M.	F.	M	F.	
...	1	...	1	...	...	...	...	...	...	...	1	1	...	...	...	...	Both cases probably abscess. In 1 there was an enlarged spleen, and in both a history of dysentery was evident.
..	1	6	6	...	...	...	...	...	2	4	1	2	...	2	1	1	9 probably were due to gall-stones, 1 catarrhal, 2 malignant, and 1 doubtful. In 1 fatal case the jaundice was caused by a cancerous mass in the lesser omentum pressing on the biliary ducts.
1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	1 case was probably malignant, and 1 seemed to be connected with the stomach.
...	...	2	...	1	...	...	...	...	...	...	3	...	...	...	...	...	1 case was a readmission.
...	...	...	1	1	...	...	...	...	1	...	...	...	...	...	...	1	1 was a fæcal abscess. In both cases the abscesses opened at umbilicus.
1	1	3	3	1	...	...	...	...	1	3	3	1	...	...	1	...	In 5 cases there was a suspicion of previous scarlet fever. 1 was complicated with syphilis. In the fatal case there was slight chronic interstitial change.
5	7	3	11	9	4	3	...	...	...	...	16	8	1	...	5	12	24 were cases of contracted granular, 16 of large white, and 2 of lardaceous kidney; 2 cases were readmissions; in 1 the age was not stated.
...	1	...	1	...	...	1	...	...	1	...	...	1	...	...	1	...	2 cases were due to calculi, 1 probably was tubercular. In the fatal case calculi were found in the kidneys and gall-bladder.
...	1	1	...	1	...	...	...	...	...	...	2	1	...	...	...	...	1 case was complicated with phthisis.
...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	The growth affected the left kidney, and caused obstruction of the inferior vena cava.
...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	
...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	Complicated with hæmaturia.
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	The left ureter was filled with putty-like substance, the left kidney cystic, and the bladder much congested and thickened.
...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	Bullous eruption on buttocks.
...	...	2	2	2	1	...	...	...	...	...	4	...	2	...	...	1	1 case was a readmission.

TABLE III—

DISEASE.	Number of cases.			Age.								Duration before admission.							
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	M.s 2–6	Mts 6–12	Chronic.	Not.
VII. DISEASES OF THE ORGANS OF LOCOMOTION.																			
Acute rheumatism	82	42	40	...	4	33	30	11	3	1	...	17	32	17	10	1	...	...	5
Subacute „	11	4	7	...	...	3	6	...	1	1	...	...	2	3	3	3	...	...	..
Muscular „	6	3	3	...	...	2	1	1	2	...	...	1	...	1	1	1	...	1	1
Gonorrhœal „	3	2	1	...	...	...	2	1	...	...	...	...	2	...	...	...	...	1	...
Chronic rheumatoid arthritis	13	6	7	...	...	...	1	3	4	3	2	...	...	...	2	5	1	5	...
Gout	13	11	2	...	...	...	...	2	6	3	2	3	4	...	2	2	...	2	...
Rickets	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
VIII. DISEASES OF THE NERVOUS SYSTEM.																			
Acute meningitis	3	1	2	1	...	1	1	...	...	...	...	...	2	1	...	...	...	...	...
Tubercular „	9	6	3	2	2	4	1	...	...	...	...	1	4	4	...	...	...	...	...
Cerebral tumour	13	6	7	2	1	1	1	4	2	2	...	...	1	2	...	6	...	4	...
Right hemiplegia	8	6	2	...	...	...	1	1	3	3	...	2	1	...	1	1	1	1	1
Left „	6	2	4	...	...	...	...	1	2	1	2	1	...	1	1	1	...	1	1

continued.

Duration of residence.								Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
1 week.	Wks 1-2	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts 6-9	Mts. 9-12	Above 1 year.	M.	F.	M.	F.	M.	F.	M.	F.	
3	15	38	18	5	2	1	...	...	38	35	3	3	1	...	...	2	2 cases were readmissions; 1 patient contracted the disease in the hospital, 1 contracted enteric fever during convalescence; 1 case was fatal from ulcerative endocarditis, and 1 from pericarditis.
.	1	5	4	...	...	...	...	...	4	6	...	1	...	...	...	...	1 was complicated with rheumatoid iritis and 1 with exophthalmic goitre.
.	3	2	...	1	...	...	...	...	1	2	2	1	...	...	...	...	2 were cases of pleurodynia, 2 were general, in 1 the muscles of the back were affected, and in 1 there was wry-neck.
.	...	...	3	...	...	...	...	...	1	1	1	...	...	...	...	...	1 was complicated with iritis.
.	...	5	6	1	1	...	...	...	...	2	6	4	...	1	...	...	1 case complicated with mitral disease, 1 with diabetes, 1 with tonsillitis, and 2 with albuminuria.
2	3	2	5	1	...	...	...	...	3	1	6	1	...	...	2	...	1 case was a readmission; there was a history of lead-poisoning in 4, in 2 there was cirrhosis of the liver and kidneys, and in 5 contracted granular kidney alone.
.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	Complicated with bronchitis and pulmonary collapse.
.	1	...	...	1	...	...	...	...	...	...	...	1	...	...	1	1	In 2 cases there was discharge from the ear; in the fatal case the pia mater was much congested and coated with recent lymph.
3	2	1	2	1	...	...	...	...	...	...	1	1	1	...	4	2	1 fatal case complicated with intussusception of the ileum.
.	2	1	4	3	2	1	...	...	...	...	3	3	...	1	3	3	1 case was transferred from the surgical wards; in 6 cases there was a history of syphilis; in 4 cases the cerebellum was involved.
.	...	...	3	2	1	1	...	...	...	...	5	2	1	...	...	...	In 3 cases there was secondary sclerosis, in 2 albuminuria, in 2 plumbism, and in 1 complete aphasia.
.	1	2	1	1	...	...	...	...	...	...	...	3	1	1	1	...	1 was complicated with an abdominal tumour; in 1 there was rigidity of flexors; in the fatal case, which was a readmission, there were mitral disease, gout, right cystic kidney, and embolism of the internal carotid and middle cerebral arteries on the right side

TABLE III—

DISEASE.	Number of cases.			Age.								Duration before admission.							
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts. 6–12	Chronic.	Not
VIII. DISEASES OF THE NERVOUS SYSTEM—*continued.*																			
Cerebral hæmorrhage	2	2	...	...	...	...	...	...	1	1	...	2	...	...	...	...	...	...	
„ softening	1	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	
General paralysis	7	7	...	...	...	...	1	4	2	...	...	...	...	...	...	2	2	3	
Mental derangement	6	3	3	...	...	1	2	...	1	1	1	...	2	1	1	...	...	1	
Chorea	20	8	12	...	3	15	2	...	...	...	...	1	5	3	4	5	...	...	
Choreiform movements	3	3	...	...	...	...	...	2	1	...	...	...	...	...	...	...	...	3	
Epilepsy	17	8	9	1	1	3	4	3	2	...	3	1	1	1	1	...	...	9	
Hysteria	17	1	16	...	...	5	3	4	3	2	...	1	1	1	1	2	3	8	
Disease of pons Varolii(?)	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	
„ medulla	1	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	
„ middle ear	1	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	
2. *Spinal cord.*																			
Pachymeningitis	1	1	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	
Paraplegia	15	11	4	...	1	1	6	2	2	2	1	3	...	1	1	3	1	4	
Locomotor ataxy	4	3	1	...	...	...	...	1	3	...	...	...	...	...	...	...	...	4	
Disseminated sclerosis	10	8	2	1	...	1	4	2	2	...	...	...	...	...	...	...	2	6	
Infantile paralysis	4	...	4	3	1	...	...	...	...	...	...	...	...	...	...	2	1	1	
Adult spinal paralysis	1	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	
Progressive muscular atrophy	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	
General spinal paralysis	1	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	
Paralysis agitans	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	
Tetanus	1	1	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	

continued.

Duration of residence.								Cured		Relieved		Unrelieved		Died.		REMARKS.
1 week	Wks 1-2	Wks 2-4	Mts 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above 1 year	M.	F.	M.	F.	M	F.	M	F.	
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	1 case was brought in dead, and in it there was hæmorrhage into the medulla and pons; in the other case there was hæmorrhage into the ventricles with granular kidney.
.	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Aortic disease, chronic bronchitis, and emphysema.
.	1	2	3	1	...	...	...	...	...	...	4	...	2	...	1	...	In the fatal case there was chronic congestion and thickening of the meninges of the brain.
1	4	1	...	...	...	...	...	...	1	...	1	2	1	1	...	...	1 was a case of epileptic mania.
1	1	4	8	6	...	...	...	...	5	6	2	5	...	1	1	...	1 case was a readmission; 1 contracted scarlet fever in the hospital. In the fatal case there was congestion of the brain and cord.
.	...	...	2	...	...	1	...	...	...	...	3	...	...	...	...	...	1 case was a readmission; in 1 the movements were localised chiefly to the right arm, and in the other the head and neck were affected.
2	7	1	3	3	1	...	...	...	1	1	6	7	1	1	...	...	In 3 cases there was a suspicion of uræmia, in 1 there was mania, in 1 partial paraplegia, and in 1 there was a probability of the attack being part of a malarial fit.
1	...	8	3	4	...	...	...	1	...	3	1	10	...	3	...	...	1 was transferred to the ophthalmic ward.
.	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	
.	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	Probably syphilitic.
.	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	Intense headache and delirium.
.	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	
1	1	2	4	3	2	2	...	...	3	1	3	3	2	...	3	...	1 case was a readmission. The cord was found to be softened in the fatal cases.
.	...	...	...	1	2	...	...	1	...	...	3	...	...	1	...	...	1 case was complicated with aortic and mitral disease.
.	1	1	3	4	...	1	...	...	...	...	5	1	3	1	...	...	2 of the cases were doubtful.
.	...	2	...	2	...	...	...	...	...	1	...	1	...	2	...	...	1 case contracted measles and 1 diphtheria in the hospital.
.	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	
.	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	
.	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	3 previous attacks, followed by partial recovery.
.	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	Complicated with ulcer of the leg.
.	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	

TABLE III—

DISEASE.	Number of cases			Age.								Duration before admission.							
	Total.	M	F	Under 5	5–10	10–20	20–30	30–40	40–50	50–60	Above 60	Dys 1–4	Dys 5–13	Wks 2–4	Mns 1–2	Mns 2–6	Mns 6–12	Chronic.	Not
VIII. DISEASES OF THE NERVOUS SYSTEM—*continued.*																			
3. *Nerves.*																			
Facial paralysis	2	1	1	...	...	...	...	2	...	...	...	...	...	1	1	...	...	...	...
Neuralgia of 5th nerve	1	1		...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...
Sciatica	6	4	2	...	...	...	...	1	...	2	2	1	...	...	1	1	...	2	1
Glossy skin	1		1	...	...	...	...		1	...	...	...	...	...	...	1	...	...	...
IX. POISONING.																			
1. *Alcoholic.*																			
Delirium tremens	6	5	1	...	...	...	...	3	2	...	1	...	2	2	1	...	...	...	...
Chronic alcoholism	2	2	..	...	...	...	...	...	1	1	...	...	...	1	1	...	...	...	...
2. *Plumbic.*																			
Colic	3	3		...	...	...	...	1	2	...	...	...	...	1	2	...	...	...	...
„ and paralysis	1	1	..	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...
3. *Various.*																			
Strychnia	2	1	1	...	...	...	1	1	...	...	...	...	2	...	...	...	...	...	...
Belladonna	1	..	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...
Oxalate of potash	1	1	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...
Chloral	1	1	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...
Mercurial	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
X. SURGICAL AND MISCELLANEOUS.																			
Debility	4	1	3	...	...	...	...	...	2	2	...	...	1	...	..	...	1	1	1
Hæmorrhoids	2		2	...	...	...	...	1	...	1	...	...	...	..	...	...	...	...	2
Stricture of urethra	2	2	...	...	...	...	...	1	1	...	...	...	...	..	...	1	1	...	...

continued.

Duration of residence.								Cured.		Relieved.		Unrelieved		Died.		REMARKS.
Under 1 week.	Wks 1–2	Wks 3–4	Mts 1–2	Mts 2–4	Mts 4–6	Mts. 6 & 9–12	Above 1 year.	M.	F.	M.	F.	M.	F.	M.	F.	
..	...	1	...	1	...	...	...	...	...	1	1	...	...	...	...	1 was due to cold, and 1 to disease of the internal ear.
...	1	..	...	...	...	...	...	1	...	...	...	...	...	...	...	Treated with croton chloral.
...	...	2	3	1	...	...	...	1	1	2	1	1	...	...	...	In 1 there was new growth in the testicles, with enlarged glands in iliac regions; 1 case was complicated with mitral disease.
...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	The fingers of the right hand were affected; much improvement was obtained by the continuous current.
3	...	1	2	...	...	...	...	2	...	1	...	...	1	2	...	1 case was complicated with phthisis; in 1 fatal case there was double-pleuro-pneumonia, in the other the dura mater was thickened and adherent, and the brain soft and œdematous.
...	2	...	...	...	...	...	...	2	...	...	...	...	...	...	...	In both cases hæmatemesis, insomnia, and tremors.
2	1	...	...	...	...	...	...	3	...	...	...	...	...	...	...	All painters.
...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	Patient was a painter, and had had nine previous attacks of colic.
2	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	Both suicidal.
1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	Accidental
1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	Suicidal.
...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	Complicated with a carbuncle on right buttock.
...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	Patient was a glass-silverer, and had suffered from tremors for eleven years.
...	1	2	...	1	...	...	...	1	1	...	2	...	...	...	...	1 was dependent on secondary affection of glands after operation for scirrhus cancer of breast.
...	1	...	...	1	...	...	...	...	1	...	1	...	...	...	...	1 probably due to portal obstruction.
...	1	...	1	...	...	...	...	...	...	2	...	...	...	...	...	In 1 case there was hæmaturia.

TABLE III—

DISEASE.	Number of cases.			Age.							Duration before admission.							
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts. 6–12	Chronic.	Not
X. SURGICAL AND MISCELLANEOUS—*continued.*																			
Tumours	3	...	3	...	...	...	1	1	1	...	...	...	...	...	...	1	1	...	
Immersion	1	...	1	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	.
Epistaxis	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	.
Morbus coxæ	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	.
Knee-joint disease	1	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	.
Abscess in abdominal walls	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	.
Concussion	1	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	.
Caries of teeth	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	
Venereal	1	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	
Malingering	1	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	.
Brought in dead	3	2	1	2	...	...	...	...	1	...	...	...	...	...	...	...	...	...	.
No notes	1	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	.
XI. FEMALE GENERATIVE ORGANS.																			
1. *Uterus.*																			
Amenorrhœa	2	...	2	...	. .	...	2	...	...	...	...	...	...	...	...	...	...	1	
Metrorrhagia	8	...	8	...	...	...	3	2	3	...	...	...	...	...	...	4	...	4	.
Parametritis	18	...	18	...	...	1	7	9	1	...	...	...	...	3	2	8	2	3	.
Pelvic abscess	5	...	5	...	...	1	3	...	1	...	...	...	...	...	...	4	1	...	...	.
Retro-uterine hæmatocele	2	...	2	...	...	...	1	1	..	...	...	1	...	...	1	...	...	...	.
Prolapsus uteri	6	...	6	...	...	...	2	1	1	1	1	...	...	1	1	1	...	3	.

continued.

Duration of residence.								Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
1 week.	Wks 1–2	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above 1 year	M.	F.	M.	F.	M.	F.	M.	F.	
	...	1	...	1	...	1	...	...	...	...	...	1	...	...	...	2	1 probably malignant in anterior triangle of neck; in 1 fatal case there were vascular tumours of right scapula and iliac bones, with softening of cord and spinal caries; in the other case there was an osteo-sarcomatous tumour in the right lumbar region, involving the cauda equina.
	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	
	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	
	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	Complicated with lardaceous disease.
	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	Transferred to surgical wards.
	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	Probably due to spinal caries.
	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	Partial hemiplegia on left side.
	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	Much glandular swelling.
	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	Soft chancre and suppurating buboes.
	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	Feigned loss of power in both arms.
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	None of the cases examined post-mortem.
	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	1	1	...	...	...	...	...	...	2	...	...	...	...	...	...	...	In 1 case there was anæmia.
	1	3	2	1	...	...	...	...	3	...	5	...	...	...	...	...	Retroversion in 1, retroflexion in 1, abdominal tumour in 1, mitral disease in 1, and incipient phthisis in 1, which was transferred to medical wards.
	2	4	8	4	...	...	...	...	11	...	5	...	2	...	...		1 transferred to medical wards; retro-latero-flexion in 1, metrorrhagia in 2, enlarged cervical glands in 1.
	1	...	1	2	...	...	...	...	2	...	...	...	...	...	3		In 1 fatal case there was enteritis with peritonitis; in 1 both ovaries were converted into cysts containing seropurulent fluid, and in addition there was acute peritonitis; in 1 there were pyæmic abscesses in the lungs, and thrombosis of right iliac vein and inferior vena cava.
	...	1	1	...	...	...	...	...	1	...	1	...	...	...	...	...	In 1 case there was parametritis.
	2	1	2	1	...	...	...	...	4	...	2	...	...	...	...	...	Ruptured perinæum in 1, old parametritis in 1.

TABLE III—

DISEASE.	Number of cases.			Age.							Duration before admission.							
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts 6–12	Chronic.	Not
XI. FEMALE GENERATIVE ORGANS—*continued.*																			
1. *Uterus.*																			
Anteflexion	8	...	8	...	...	1	3	4	...	...	...	...	...	...	...	...	2	6	..
Retroversion	7	...	7	...	...	...	5	2	...	...	...	...	...	...	...	...	1	5	
Retroflexion	10	...	10	...	...	...	6	...	3	1	...	...	...	1	...	...	1	3	
Retro-latero-version	1	...	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	.
Retro-latero-flexion	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	.
Latero-version	1	...	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	.
Endometritis	14	...	14	...	...	...	7	6	1	...	...	...	...	...	2	4	1	5	
Metritis	2	...	2	...	...	...	1	1	...	...	...	...	...	...	...	1	1	...	.
Uterine polypus	2	...	2	...	...	...	...	...	1	1	...	...	...	...	...	1	...	1	.
„ fibroid	9	...	9	...	...	...	...	3	5	1	...	...	...	...	...	2	1	4	
Carcinoma uteri	18	...	18	...	...	...	5	3	8	1	1	...	...	1	...	2	6	7	
Subinvolution	5	...	5	...	...	...	2	1	2	...	...	...	...	...	1	1	1	2	.
Superinvolution	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	.
Endocervicitis	4	...	4	...	...	...	2	1	1	...	...	...	...	...	...	1	...	2	
Allongement of cervix	3	...	3	...	...	...	1	2	...	...	...	...	...	...	...	...	...	3	.
Stenosis of cervix	2	...	2	...	...	...	1	1	...	...	...	...	...	...	...	...	...	2	.
Granular erosion of os	2	...	...	...	...	..	1	1	...	..	...	...	...	...	1	...	...	...	

continued.

Duration of residence.								Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
Under 1 week.	Wks 1–2	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above 1 year.	M.	F.	M.	F.	M.	F.	M.	F.	
...	1	3	1	1	2	...	...	...	...	3	...	4	...	1	...	...	Dysmenorrhœa in 4, subovaritis in 2, ovaritis in 1, ovarian neuralgia in 1, and endometritis in 1.
...	...	1	1	4	...	1	...	...	...	3	...	4	...	...	...	...	Erosion of cervix in 1, parametritis in 1, ruptured perinæum in 2, subovaritis and dysmenorrhœa in 1, ovaritis in 1, and endometritis in 3.
3	1	1	1	4	...	...	...	...	...	5	...	5	...	...	...	...	Metrorrhagia in 2, dysmenorrhœa in 3, pelvic abscess in 1, ovaritis in 1, subovaritis in 1, follicular vaginitis in 1.
...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	
...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	
...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	Transferred from medical wards; complicated with subovaritis and inflamed sacro-coccygeal joint.
...	2	2	8	2	...	...	...	...	...	9	...	3	...	1	...	1	Dysmenorrhœa in 2, metrorrhagia in 2, old parametritis in 1, retroversion in 1; in the fatal case death was due to hæmorrhage.
...	...	2	...	...	...	...	...	...	...	...	...	2	...	...	...	...	1 complicated with endometritis, 1 with parametritis.
...	...	2	...	...	...	...	...	...	...	2	...	...	...	...	...	...	Both fibroid.
2	...	3	2	1	1	...	...	...	...	3	...	4	...	...	...	2	1 was extra-uterine, 1 was complicated with parametritis, and 1 with hæmatocele; in 1 fatal case there was chronic bronchitis, and in the other the tumour had undergone cystic degeneration.
2	4	4	6	2	...	...	...	...	...	...	...	15	...	1	...	2	In 1 fatal case there were secondary deposits in various organs; in the other there were apparently pyæmic abscesses in the liver, and pneumonic consolidation.
...	1	2	1	1	...	...	...	...	...	4	...	1	...	...	...	...	Anteversion in 1, retroflexion in 1.
...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	Complicated with amenorrhœa, vaginitis, and cystitis.
...	...	...	3	1	...	...	...	...	...	3	...	1	...	...	...	...	Anteversion and subovaritis in 1, dysmenorrhœa in 1.
...	...	1	...	2	...	...	...	...	...	1	...	2	...	...	...	...	Endocervicitis and dysmenorrhœa in 1, pregnancy in 1.
...	1	...	1	...	...	...	...	...	...	1	...	1	...	...	...	...	Retroversion, endometritis, dysmenorrhœa, metrorrhagia, and old parametritis in 1.
...	...	...	...	2	...	...	...	...	...	1	...	1	...	...	...	...	Metrorrhagia in 1, parametritis and retroversion in 1.

TABLE III—

DISEASE.	Number of cases.			Age.							Duration before admission.							
	Total.	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts 6–12	Chronic.	Not
XI. FEMALE GENERATIVE ORGANS—*continued.*																			
2. *Ovaries.*																			
Ovaritis	4	...	4	...	...	...	2	1	...	...	1	...	...	...	1	1	...	2	..
Ovarian tumour	6	...	6	...	...	...	1	1	2	2	...	...	...	...	...	1	1	3	]
3. *Vagina, &c.*																			
Vaginitis	2	...	2	...	...	...	2	...	...	...	...	...	...	...	1	...	...	...	]
Vesico-vaginal fistula	3	...	3	...	...	1	...	2	...	...	...	...	...	...	...	...	...	3	..
Recto-vaginal fistula	1	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	]
4. *Accidents of pregnancy.*																			
Premature labour	2	...	2	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	..
Gravid uterus	2	...	2	...	...	...	...	2	...	...	...	...	...	...	1	1	...	...	..
Metrorrhagia after abortion	2	...	2	...	...	...	...	2	...	...	...	...	...	2	...	...	...	...	..
Post-partum febricula	1	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	]
Phlegmasia dolens	3	...	3	...	...	...	3	...	...	...	...	...	...	2	...	1	...	...	..
Erysipelas of leg	1	...	1	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	..
Ruptured perinæum	2	...	2	...	...	...	...	2	...	...	...	..	...	...	1	...	...	1	..
5. *Various.*																			
Epithelioma of vulva	2	...	2	...	...	...	1	1	...	...	...	...	...	...	...	...	1	1	..
Hypertrophy of nymphæ	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Retention of urine	2	...	2	...	...	1	...	1	...	...	...	1	...	1	...	...	...	...	...
Pelvic tumour	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
No notes	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...

continued.

Duration of residence.								Cured.		Relieved.		Unrelieved.		Died.		REMARKS.
Wks 1–2	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts 4–6	Mts. 6–9	Mts. 9–12	Above 1 year.	M.	F.	M.	F.	M	F.	M.	F.	
...	1	3	...	...	...	...	...	...	3	...	1	...	...	...	...	Left ovary affected in 2, right in 2; 1 case complicated with a caruncle at the meatus.
3	3	...	...	...	...	...	...	...	...	...	1	...	4	...	1	2 cases were doubtful, 2 transferred to surgical wards, 1 case complicated with retroflexion, and in the fatal case there was double pleurisy, and malignant growths in various organs.
1	1	...	...	...	...	...	...	...	1	...	...	...	1	...	...	1 transferred to medical wards.
...	...	1	1	1	...	...	...	...	1	...	2	...	...	...	...	1 aborted in the hospital.
...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	After operation for ruptured perinæum.
...	1	...	1	...	...	...	...	...	2	...	...	...	...	...	...	In 1 case premature labour was induced at the sixth month on account of an abdominal tumour.
1	1	...	...	...	...	...	...	...	...	...	2	...	...	...	...	1 was admitted for excessive vomiting, and 1 on account of severe pain.
1	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	
...	2	1	...	...	...	...	...	...	2	...	1	...	...	...	...	Endometritis in 1; in 1 there had been post-partum hæmorrhage, and in 1 delivery by forceps.
...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	Treated by incisions.
...	...	2	...	...	...	...	...	...	1	...	1	...	...	...	...	1 was partial.
1	...	...	...	1	...	...	...	...	...	...	2	...	...	...	...	Removal in both cases.
...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	
1	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	1 transferred to "Magdalen."
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	No post-mortem examination.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	

TABLE IV.—*Showing the Mortality of each Disease at different ages and the rate per cent.*

DISEASE.	Total.		Age.								Mortality per cent.
	No. discharged.	No. died.	Under 5	5–10	–20	–30	–40	–50	–60	–70	Above 70	
1. SPECIFIC FEBRILE DISEASES.												
Measles	7	1	1	...	...	...	...	...	...	...	...	12·5
Variola	2	1	...	...	...	...	1	...	...	...	...	...
Scarlet fever	19	4	2	2	...	...	...	...	...	...	...	17·4
Typhus	4	2	...	...	...	1	1	...	...	...	...	33·3
Enteric	76	7	...	...	4	3	...	...	...	...	...	8·4
Diphtheria	11	7	5	...	1	1	...	...	...	...	...	38·8
2. DISEASES OF THE RESPIRATORY ORGANS.												
Phthisis	37	26	...	1	3	4	11	3	2	2	...	41·2
Acute bronchitis	8	1	1	...	...	...	...	...	...	...	...	11·1
Chronic bronchitis and emphysema	48	12	...	...	...	1	2	3	6	...	...	20·
Broncho-pneumonia	4	4	4	...	...	...	...	...	...	...	...	50·
Acute pneumonia	37	10	1	...	1	2	3	2	...	1	...	21·2
Pleurisy	17	1	...	...	...	1	...	...	...	...	...	5·5
Empyæma	4	1	1	...	...	...	...	...	...	...	...	...
Mediastinal tumour	...	1	...	...	...	...	1	...	...	...	...	...
3. DISEASES OF THE VASCULAR SYSTEM.												
Fatty degeneration of heart	...	2	...	...	...	...	...	1	...	1	...	...
Malformation	7	2	...	...	1	...	1	...	...	...	...	22·2
Mitral	35	9	...	...	3	1	2	...	1	2	...	20·4
Aortic	4	4	...	...	...	...	...	3	1	...	...	50·
Mitral and aortic	11	10	...	1	3	...	3	2	...	1	...	47·6
Aneurysm	7	9	...	...	...	1	1	4	3	...	...	56·2
Degeneration of arteries	...	1	...	...	...	...	...	...	...	1	...	...
Addison's disease	...	1	...	...	...	...	1	...	...	...	...	...
Myxœdema	4	1	...	...	...	...	...	...	1	...	...	20·
4. DISEASES OF THE DIGESTIVE ORGANS.												
Stricture of œsophagus	2	3	...	...	...	...	...	1	2	...	...	60·
Chronic œsophagitis	...	1	...	...	...	1	...	...	...	...	...	...
Gastric ulcer	12	1	...	...	...	...	...	1	...	...	...	7·7
Carcinoma of stomach	4	8	...	...	...	...	...	2	4	2	...	66·6
Diarrhœa	1	1	1	...	...	...	...	...	...	...	...	...
Enteritis	...	1	...	...	...	...	...	1	...	...	...	...
Intestinal obstruction	4	8	1	1	...	1	...	...	2	3	...	66·6
Acute peritonitis	2	1	...	...	...	...	1	...	...	...	...	...
Chronic „	11	1	...	...	...	1	...	...	...	...	...	8·3
Cirrhosis of liver	15	10	...	...	...	1	3	2	4	...	...	40·
Cancer of liver	...	1	...	...	...	...	...	1	...	...	...	...
Hepatic abscess	2	2	...	...	...	...	...	1	1	...	...	50·

TABLE IV—*continued.*

DISEASE.	Total.		Age.									Mortality per cent.
	No. discharged.	No. died.	Under 5	5–10	–20	–30	–40	–50	–60	–70	Above 70	
4. DISEASES OF THE DIGESTIVE ORGANS—*continued.*												
Hydatid of liver	2	1	...	...	...	...	...	...	1	...	...	...
Obstructive jaundice	11	2	...	..	...	...	...	1	...	1	...	15·4
Abdominal abscess	1	1	...	...	1	...	...	...	...	...	...	...
5. DISEASES OF THE GENITO-URINARY SYSTEM.												
Acute nephritis	8	1	...	...	...	...	1	...	...	...	...	11·1
Chronic[1] „	25	17	...	...	2	6	1	3	3	1	...	40·
Pyelitis	2	1	...	...	...	...	...	1	...	...	...	...
Carcinoma of kidney	...	1	...	...	...	...	...	...	...	1	...	...
Diabetes	6	1	...	...	...	...	1	...	...	...	...	14·2
6. DISEASES OF THE ORGANS OF LOCOMOTION.												
Acute rheumatism	80	2	...	...	2	...	...	...	...	...	...	2·4
Gout	11	2	...	...	...	...	...	1	1	...	...	15·3
Rickets	...	1	1	...	...	...	...	...	...	...	...	...
7. DISEASES OF THE NERVOUS SYSTEM.												
Acute meningitis	1	2	1	...	...	1	...	...	...	...	...	...
Tubercular meningitis	3	6	2	2	1	1	...	...	...	...	...	66·6
Cerebral tumour	7	6	2	...	...	...	2	1	1	...	...	46·1
Hemiplegia	13	1	...	...	...	...	...	1	...	...	...	7·1
Cerebral hæmorrhage	...	2	..	...	...	...	...	1	1	...	...	...
„ softening	...	1	...	...	...	...	...	1	...	...	...	...
General paralysis	6	1	...	...	...	...	...	1	...	...	...	14·2
Chorea	19	1	...	...	1	...	...	...	...	...	...	5·
Paraplegia	12	3	...	...	...	...	1	...	1	1	...	20·
8. POISONING.												
Delirium tremens	4	2	...	...	...	1	1	...	...	...	...	33·3
9. SURGICAL AND MISCELLANEOUS.												
Tumours	1	2	...	...	...	1	1	...	...	...	...	...
Brought in dead	...	3	2	...	...	...	...	1	...	...	...	...
10. FEMALE GENERATIVE ORGANS.												
Pelvic abscess	2	3	...	...	...	1	1	1	...	...	...	60·
Endometritis	13	1	...	...	...	...	1	...	...	...	...	7·1
Uterine fibroid	7	2	...	...	...	...	...	1	1	...	...	22·2
Carcinoma uteri	16	2	...	...	...	...	1	1	...	...	...	11·1
Ovarian tumour	5	1	...	...	...	...	...	1	...	...	...	...
Pelvic „	...	1	...	...	...	...	...	...	1	...	...	...

[1] The age in one case was not stated.

TABLE V.—*Cases of Infectious Diseases originating in Hospital Wards.*

Initials.	Sex.	Age.	Disease for which admitted.	Disease originating in hospital.	Date of attack.	Result.	Remarks.
P. H.	M.	5	Lacerated wound of scrotum	Rötheln	July 7	C. August 3	Victoria Ward.
J. G.	M.	2	Pemphigus	Measles	April 16	C. May 4	Ditto.
W. P.	M.	2	Disease of knee-joint	Ditto	December 4	C. December 20	Ditto.
R. D.	M.	16	Genu valgum	Ditto	„ 2	C. „ 20	Leopold Ward.
J. H.	M.	3	Disease of elbow-joint	Ditto	May 26	D. June 11	Alexandra Ward.
P. C.	F.	3	Infantile paralysis	Ditto	April 7	C. May 21	Victoria Ward.
A. F.	F.	1½	Ichthyosis	Ditto	„ 18	C. „ 7	Ditto.
E. V.	F.	4	Rickets	Ditto	March 24	C. April 13	Ditto.
E. W.	F.	12	Chorea	Scarlet fever	February 22	C. „ 27	Alice Ward.
J. M.	F.	36		Ditto	November 12	C. January 14	Nurse in hospital.
G. G.	M.	24		Ditto	February 27	C. April 7	House-physician.
E. C.	F.	34	Acute rheumatism	Enteric fever	December 6	C. „ 11	Alice Ward.
M. C.	F.	22	Bronchocele	Ditto	January 6	D. February 13	Ditto.
I. H.	F.	13	Mitral disease	Ditto	November 29 (?)	D. December 12	Christian Ward.
T. G.	M.	3	Scald	Diphtheria	May 25	C. June 17	Victoria Ward.
F. G.	F.	5	Infantile paralysis	Ditto	April 9	C. April 16	Ditto.
S. H.	F.	—		Facial erysipelas	December 3	C. December 23	"Sister" of infectious wards.
E. H.	F.	24	Pelvic abscess	Pyæmia	September 10	D. October 12	Adelaide Ward. Uncertain whether the disease did not arise before admission.

Table VI.—*Typhus fever.*

Note.—All the patients except the last belong to the same family.

Initials, age, and sex.	History before admission.	State on admission.	Progress of case.	Temperature.	Complications.	Result.
J. M., 20, male	Carried a child ill with "fever," and 12 days afterwards had a rigor; on the 4th day described as looking like a "Red Indian," and delirious all night	Headache, general pains, drowsiness; skin hot, dry, and exuding a peculiar odour, tâches cérébrales; tongue dry, glazed, and red at the tip, nausea, constipation; spleen not enlarged; some spots, apparently typhoid	Sordes on teeth and lips, much thirst, some delirium and tâches bleuâtres on the 2nd day after admission. 4th day — Abundant mottling with persistent spots, blue spots fading, delirium, trace of albumen in urine, conjunctivæ much injected, marked mouse-like odour of the skin, subsultus tendinum, urine passed involuntarily; pulse 126, weak. Subsequently the pulse became more feeble and rapid, coma-vigil set in with great prostration, and death took place on the 10th day after admission, being the 14th day of the disease	1st day, p.m., 104·8°. 2nd day, 103·2° to 103·8°. 3rd day, 103·4° to 104°. The morning and evening temp. continued high until the 11th day of the disease, when there was a marked fall. Morning temp. was normal next day. On the day of death the temp. varied from 102·4° to 107·4° just before death	Albuminuria, Hyperpyrexia	Died. Post-mortem examination. Hæmorrhages in epigastric and umbilical subserous tissue; pleuræ and pericardium contain small quantities of bloody serum; heart, liver, and kidneys flabby and pale; lungs congested; spleen enlarged, soft, and congested; Peyer's patches slightly congested

TABLE VI—*continued.*

Initials, age, and sex.	History before admission.	State on admission.	Progress of case.	Temperature.	Complications.	Result.
J. F., 16, male	Had been sleeping with previous patient every night for a week before present illness began; shivering, general pains, and nausea a week before admission	Face dusky, conjunctivæ injected, skin hot and dry; on trunk, shoulders, and thighs are some circular, slightly elevated, pinkish spots, fading on pressure, and interspersed are other larger spots, more irregular, deeper in colour, and not disappearing on pressure; no mottling; spleen enlarged and tender; tongue slightly coated, dry, and fissured, much thirst, constipation; slight headache, no delirium, trace of albumen	3rd day after admission—Tongue dry and brown; eruption more copious, spots not raised, more dusky, some mottling; sleeplessness, delirium; rhonchi over lungs; pulse 120. 8th day—Very restless and delirious at night; face flushed, conjunctivæ much injected, pupils normal; some diarrhœa. Three days subsequently there were dulness with crepitation at both bases of lungs and moderate diarrhœa. Convalescence set in suddenly on the 20th day of the disease	1st day, 103·4° to 105·4°. 2nd day, 102·5° to 105°. Temp. continued high, with slight morning remissions, until the 17th day of the disease, when there was a decided fall. On the 20th day the temp. suddenly fell and became normal	Bronchitis. Hypostatic congestion of lungs, albuminuria	Cured.
M. D., 2, female	Was noticed to be "feverish" 3 days before admission, vomited, had diarrhœa and epistaxis, but did not shiver	Drowsy, face flushed, numerous petechial spots on face, left arm, and back, some rose-coloured spots, fading on pressure, at lower part of back; pulse 164, weak; resp. 40; tongue dry, red, and cracked, no vomiting, some diarrhœa; sleeps badly, very restless, no delirium	Symptoms remained much the same until the 4th day, when an improvement set in; the diarrhœa continued until the 6th day. On the 8th day a large boil formed on the right side of head, and on the 10th day there was a little crepitation at the base of the right lung	1st day, p.m., 102·2°. 2nd day, 103·4° to 103·8°. 3rd day, 100·1° to 102·8°. 4th day, 100·4° to 100·6°. 5th day, 99·6° to 101·8°. 6th day (9th day of the disease), temp. became normal	Hypostatic congestion of lungs	Cured.
W. D., 5, male	Taken ill the day of admission with drowsiness, loss of appetite, vomiting, shiver-	Drowsy, face flushed, conjunctivæ congested; some indistinct rose-coloured spots, disappearing on pressure, on backs of hands; tongue coated, but moist; bowels confined; spleen somewhat	On the 4th day after admission the eruption became more copious, and on the 6th day there was some mottling of face. Symptoms remained with little change, except that there was in-	1st day, p.m., 102·8°. 2nd day, 99·2° to 101·4°. 3rd day, 100·8° to 103·3°. 4th day, 102·8° to 103·6°. 5th day, 103° to 104°. 6th day, 102·8° to 103·8°. 7th day, 101° to 104·6°.	—	Cured.
	headache; no	strength; no headache				

	diarrhœa		decided improvement was observed. Convalescence set in on the 9th day	temp. became normal and remained so		
E. D., 26, female	5 days before admission felt cold and shivered; 2 days afterwards vomited	Face flushed, conjunctivæ congested, pupils contracted; drowsiness, headache, deafness, and general tenderness; a few irregular, reddish spots, fading on pressure, on abdomen and arms; tâches bleuâtres on feet; tongue coated, much thirst, bowels confined; pulse 108, weak	On the 2nd day headache continued, more restlessness, some delirium, catamenia came on. On the 3rd day numerous irregular non-elevated spots, fading on pressure, observed on forearms and legs. A few petechiæ developed on trunk and arms on the 5th day. Convalescence took place gradually, and was completed on the 20th day of the disease	1st day, 103·6° to 104·8°. 2nd day, 104·8° to 105·4°. Temp. remained high until the 9th day (14th of the disease), when there was a decided fall. On the 18th day the temp. became normal	Hypostatic congestion of lungs	Cured.
G. S., 34, male	6 days before admission, shivered, vomited, felt very thirsty, and had headache	Face flushed, conjunctivæ much injected; tongue coated with thick brownish fur, red at tip and edges; headache, prostration, thirst, loss of appetite, no vomiting, bowels relaxed; on chest, abdomen, thighs, shoulders, and forearms are numerous irregular, dusky, slightly raised spots, some fading, and others not fading on pressure; abdomen distended, not tender; spleen not enlarged; sleeps badly, violent delirium, some headache, pupils dilated, slight albuminuria	3rd day—Still violent delirium, sleeps little, evacuations passed involuntarily; tongue dry and brown; pulse 132, full. 4th day—Drowsy, less delirious, bowels relaxed, stools loose and very offensive; crepitation and dulness at base of right lung, first sound of heart feeble, pupils contracted. On the 7th day coma-vigil and subsultus tendinum, more prostration, involuntary passage of evacuations. Death took place on the 9th day (15th of the disease)	1st day, p.m., 104°. 2nd day, 103·8° to 105°. Temp. continued high until the 5th day (11th of the disease), when there was a slight fall in morning and evening temp. On the 6th day the temp. ranged from 103·2° to 105°. 7th day 103·6° to 106·5°. A graduated cold bath was given, and in about half an hour the temp. was reduced to 105·6°. On the 15th day of the disease (9th after admission) the evening temp. rose to 108·8° in the axilla, and 109·5° in the rectum, when death took place. Two hours after death temp. was 102·6°	Hypostatic congestion of lungs, albuminuria, hyperpyrexia	Died. Post-mortem examination. Muscles dark red; venous system engorged with dark fluid blood; pleuræ contain a few ounces of bloody fluid; lungs congested at bases; liver very flabby; gall-bladder contains a large calculus; spleen enlarged, congested, soft, and friable; mucous membrane of large intestine congested and softened

TABLE VII.—*Thoracic Aneurysms. Fatal cases.*

Initials, age, and sex.	Occupation.	History before admission.	General symptoms.	Physical signs of aneurysm.	Condition of heart.	Post-mortem examination.
T. B., 44, male	Porter	Has had several attacks of acute rheumatism, and has also had syphilis; 1 year before admission had pain in the chest, dyspnœa, and "stitch" in the left side; symptoms became gradually worse, and he soon began to lose flesh; at the same time cough, with very little expectoration, came on	On admission pain in chest, cough, and dyspnœa; signs of fluid in both pleuræ, friction on the left side, with crepitation and harsh respiration over the bases of both lungs; slight albuminuria. 6 days after admission he became delirious; left pupil larger than right. Subsequently the pupils were sometimes equal, and at other times unequal; the albuminuria was not constant; the delirium and other symptoms persisted; jaundice, and œdema of both feet came on. Death took place on the 34th day after admission	Ill-marked; diastolic murmur in 2nd right intercostal space, no decided dulness	1st sound reduplicated at apex, and diastolic murmur at base, friction over precordial region; subsequently a systolic murmur was heard at right of sternum	40 ounces of clear serous fluid in right and 20 ounces in left pleura; pericardium adherent by moderately old adhesions; both ventricles dilated; valves appear healthy, but aortic orifice is somewhat dilated; aorta very atheromatous, dilatation and in parts slight pouching of ascending and transverse parts of aorta; just above aortic valves is a round saccular aneurysm, about the size of a hen's egg, containing little clot, and projecting anteriorly; general brown atrophy of lungs; spleen enlarged; liver "nutmeg;" kidneys large and granular; gouty deposits in great toe-joints.
J. H., 50, male	Labourer	No history of syphilis or injury; 10 months before admission cough, pain in the left side of chest, left shoulder, and side of neck, sometimes of an aching, and sometimes of a shooting character, came on; lately loss of voice, difficulty in swallowing, and emaciation was noticed	On admission there was burning pain in left side of chest, and occasional shooting pains down left arm and left side of face, dyspnœa, no real dysphagia, but occasional pain on swallowing; distension of veins of left arm and of left external jugular; no œdema of face; left radial and brachial almost imperceptible; left vocal cord does not act; pupils sometimes equal, and at other times unequal. Died in a syncopic attack on the 34th	Extensive dulness over upper part of chest, transversely measuring five inches, and vertically reaching to lower border of 2nd rib, with bulging and pulsation	Apex not felt, dulness not made out, faint systolic bruit at right base, 2nd sound accentuated	Heart displaced to the right of median line, not hypertrophied; aneurysm behind upper part of sternum, which is eroded; mediastinal surface of upper lobe of left lung, together with left bronchus, adherent to sac; at this point rupture had taken place, and left pleura was filled with coagulated blood; aneurysm was saccular, the size of a large orange, and nearly filled with firm old clot; the left carotid and upper lobe of left

E. B., 27, male	Seaman	Syphilis, doubtful; sudden strain 4 months ago, followed in a fortnight by loss of voice, sharp burning pain in front of chest, radiating down right arm; could not lie on right side	Aching pain on right side of neck and right shoulder; right external jugular distended, aphonia, no dysphagia; pleuro-pericardial friction, cough; subsequently right vocal cord became paralysed, right radial pulse smaller, and finally barely perceptible, expectoration became profuse, attacks of pain paroxysmal and very frequent, œdema and lividity of the head and neck very marked, the respiration stridulous, pain in swallowing, with occasional diarrhœa, and on one occasion melæna; delirium was noticed on two or three occasions. Death on the 318th day after admission	Fulness and pulsation in right supra-clavicular space, with dulness at junction of 1st rib to right side of sternum; later there was extensive dulness, pulsation, and bulging across the upper part of front of chest	Apex between 5th and 6th ribs, just outside nipple; subsequently pericarditis, with effusion, took place, and a systolic bruit became audible below right sterno-clavicular articulation, and towards the end it was heard also at the apex	Sternum eroded and adherent to aneurysm, which involves the right innominate artery in its whole length; the tumour contained much firm clot; right innominate vein obliterated, and left much compressed; right carotid filled with coagulum, but right subclavian pervious; right recurrent laryngeal nerve much stretched, and adherent to the sac of the aneurysm; left laryngeal nerve also compressed by a small aneurysm, involving posterior part of transverse arch of aorta; there was also an aneurysm, the size of a hen's egg, on the first part of the arch, and a second, smaller in size, involving the bulb of the aorta.
W. P., 51, male	Carpenter	Readmitted; has been getting worse; much dyspnœa, pain up left side of head, and has twice had hæmoptysis	Dyspnœa; cough, with purulent expectoration; pain in cardiac region and down left arm; effusion into both pleuræ; displacement downwards of liver; right pupil slightly dilated; symptoms increased gradually in severity; delirium came on, and death took place on the 155th day after admission	Dulness, bulging, and pulsation laterally, below right clavicle, and occupying 1st and 2nd interspaces at the inner ends	Apex beat strong, heart displaced downwards; systolic bruit at apex, double murmur at base, loudest over the aneurysm	Much effusion into right pleura, and a few ounces in the left; left lung displaced outwards, collapsed; right lung consolidated at base; left kidney contains a small cyst; liver displaced downwards; aneurysm adherent to 1st and 2nd costal cartilages, partially filled with old clot, and presenting a secondary dissecting aneurysm at its upper part; aneurysm begins about half an inch from the aortic orifice, and involves the ascending, transverse, and descending portions of the arch; left ventricle much hypertrophied; trachea compressed and bulging laterally.

TABLE VII.—*continued.*

Initials, age, and sex.	Occupation.	History before admission.	General symptoms.	Physical signs of aneurysm.	Condition of heart.	Post-mortem examination.
F. P., 43, male	Labourer	Acute rheumatism when a child, ague and dysentery many years ago, winter cough and dyspnœa for about 8 years; 7 weeks ago sudden shivering, pain in the chest, with feverishness, cough, dyspnœa, and sharp pains up right side of head and neck	Pain in chest and occasionally in back; dyspnœa, cough, and inability to lie on right side; tubular breathing, with increased vocal resonance and fremitus over front of left lung, dulness posteriorly, with amphoric breathing and crepitation at apex, signs of fluid at extreme base, with pleuritic friction and tubular breathing above; respiration harsh over right lung; paroxysmal attacks of dyspnœa, occasional severe headache; dilatation of right pupil and distension of veins on left side of neck subsequently were noticed; expectoration became abundant, purulent, and offensive; temp. was elevated at irregular intervals, preceded by rigors; death took place on 235th day after admission	Dulness over upper part of middle of chest, 2 inches transversely and 2½ inches vertically, with pulsation and systolic bruit	Apex beats in 5th intercostal space, a little internal to nipple, impulse strong and diffused, systolic murmur all over precordial region, second sound roughened	60 ounces of serous fluid in peritoneum, 12 ounces in right pleura, and 10 ounces in pericardium; aneurysm reaches from top of sternum to lower border of 4th rib, and to right of sternum opposite 1st and 2nd ribs; tumour adherent to sternum and ribs; end of 1st, whole of 2nd, and commencement of 3rd parts of arch of aorta dilated into a large aneurysm, containing but little coagulum; left lung much compressed and broken down into irregular cavities with fœtid contents; interstitial tissue much increased, tubes dilated; liver and spleen amyloid; heart normal.
G. C., 35, male	Musician	Doubtful history of syphilis; treated for popliteal aneurysm 9 months previously; 3 weeks ago had pain on left side of head and neck and down right arm, followed by dysphagia and "barking" cough	Pain in back of neck extending down right arm, sometimes paroxysmal; dysphagia, short dry cough, no aphonia, right pupil larger than left; superficial veins on chest much dilated, right radial pulse extremely feeble; later the pain became more severe, the dysphagia more marked, the condition of the pupils varied, and the cough was accompanied	Prominence, pulsation, and ill-defined dulness in upper part of thorax, most marked on left side, and extending from inner third of clavicle to upper border of 3rd rib	Apex between 6th and 7th ribs, 2 inches below nipple; systolic murmur all over precordial region, heard at the back, but loudest below right sterno-clavicular ar-	Irregularly fusiform aneurysm projecting backwards and upwards, presenting many minor bulgings, and involving the arch from its origin to a point nearly 1 inch to the left of the left subclavian artery; small aneurysm about 1 inch in diameter just below this; bronchial glands much enlarged, and contributed with the aneurysm to pressure on œso-

			with offensive blood-stained sputum; death took place on the 23rd day after admission		ticulation	phagus; left ventricle dilated; caseous mass, resembling a gumma, in the liver.
G. M., 56, male	Labourer	Has been a heavy drinker for many years; syphilis, doubtful	Dyspnœa, stridulous cough, aphonia; veins of neck, chest, and arms very dilated, especially on left side; dysphagia; right radial and brachial arteries pulsate feebly, and left carotid less than right; occasional attacks of syncope; died on the 8th day after admission	Prominence, pulsation, and dulness over front of chest, extending from episternal notch downwards to a level with a line drawn through 3rd costal cartilages; a pulsating mass, communicating a thrill, also felt above manubrium and clavicles	Heart displaced downwards; double murmur all over region of heart, loudest in epigastrium	Aneurysm involves the innominate and arch of aorta as far as left carotid; right common carotid filled with clot; innominate veins much compressed; sac of aneurysm contains much laminated fibrin; another small aneurysm, just to the left of the origin of the left subclavian, compressed the left vagus and recurrent laryngeal; a third aneurysm involved the aorta, 1 inch below this; just above the aortic orifice there was a small aneurysmal dilatation; œsophagus communicated with trachea by a small fistulous opening, and below this the gullet was abnormally small.
J. B., 40, male	Porter	Not stated	Much dyspnœa, cough with expectoration; severe pain in front of chest and in back, sometimes paroxysmal; left pupil dilated; left pleurisy; pulse rapid and dicrotic, especially on left side; died on the 48th day after admission	Great bulging, with pulsation and dulness over front of chest from 2nd to 6th rib	Apex beats in posterior axillary line 5 inches below nipple, double murmur all over precordial region	Aneurysm begins just above aortic orifice, and is directed forwards to right of pulmonary artery, and extends to 2 inches below origin of innominate artery; left ventricle much hypertrophied.
J. M., 46, female	Married	Acute rheumatism many years ago; 3 weeks ago dyspnœa, with cough and expectoration came on	Palpitation, dyspnœa, cough with much expectoration; crepitation at bases of lungs; slight œdema of legs; pulse rather collapsing; died on the 12th day	No distinct signs	Apex in 6th interspace just outside nipple, double murmur loudest at base of heart	Aneurysm extends from aortic valves to the origin of left subclavian; innominate slightly involved; sac contains soft jelly-like clot, walls very rough and calcareous; aortic valves thickened and rough; recent infarcts in right lung.

Table VIII—*Myxœdema.*

Initials, age, and sex.	History before admission.	General symptoms.	Facies.	Speech.	Urine.	Temperature.		Result.
						Highest.	Lowest.	
I. S., 35, F.	Acute rheumatism 12 years ago; since then movements have become slower, and of late speech has been affected, memory has failed, catamenia have become irregular and scanty, and abdomen swollen	Tongue large and flabby; some fulness of pillars of fauces and root of tongue; no dysphagia; skin on dorsum of hands waxy in some parts, pinkish from injected capillaries in other parts; elsewhere skin is rough, dry, and scaly; no œdema of feet; thyroid small and firm; neck full; catamenia absent for two months. Headache and deafness, tendency to fall, dyspnœa, general pains, sensation of "pins and needles," always feels cold, nails break easily, occasional delusions	Circumscribed flush on cheeks, with marked pallor of skin round eyes; puffiness of face, upper lip, cheeks, and also alæ nasi	Slow, "leathery," and nasal	Average quantity 44 ounces; occasional trace of albumen; good indigo reaction	M. 98·8°; E. 98·2°	M. 95°; E. 96°	Relieved.
H. B., 35, F.	Swelling of eyelids, feet, and abdomen, with failure of memory, noticed 8 years ago, after confinement; 3 weeks ago, weakness of left side	Hands "spade-like;" movements slow and clumsy; constant headache, giddiness, failure of memory, delirium with delusions; some impairment of sight; legs slightly œdematous; general pains;	Expression heavy; limited flush on cheeks contrasting with waxy pallor beneath eyes; face generally swollen;	Slow and rather "husky"	Average quantity 28 ounces; trace of albumen on one occasion; phosphates; largest amount of urea in 24	M. 98°; E. 99·2°	M. 94·4°; E. 95·2°	Relieved.

	of body and giddiness	catamenia appeared during her stay in the hospital, having been absent for a year previously	upper lip and nostrils thickened		hours 196 grs., smallest quantity 66 grs.			
T. S., 57, F.	Eruption on face and neck 10 years ago; at the same time noticed swelling of face and abdomen and some impairment of speech and movements. The symptoms have continued with occasional remissions since. Of late memory has been failing. Catamenia ceased about the time the symptoms were first noticed	Headache; difficulty in walking, and general swelling of body; hands spade-like; skin on dorsum smooth, dry, and rough on forearms; tongue large and red; fauces arched and thickened; tonsils enlarged; uvula apparently absent; pulse small and compressible; subsequently delirium with delusions was noticed, and pain in the head was almost constant	Generally swollen, pasty; circular patch of redness on each cheek; eyelids swollen; lips and nostrils thickened; no pitting on pressure	Not stated	Average quantity 24 ounces; trace of albumen on two occasions; marked indigo reaction	M. 97·6°; E. 98·6°	M. 92·6°; E. 94·4°	Relieved.
A. P., 60, F.	Chronic rheumatism for 5 years. Swelling of legs first noticed 2 years ago, at the same time had pricking sensations in the fingers; movements have become much slower; face very much swelled; eyesight and memory have failed; always feels cold	Body generally swollen; legs pit slightly on pressure; hands puffy, and skin on dorsum shiny and pinkish; skin generally dry and scaly; movements slow and deliberate; thyroid gland hard, not enlarged	Circumscribed flush on each cheek, other parts of face pale and shiny; area of puffiness under the eyes; nostrils and lips enlarged; expression of face vacant	Thick, but not very slow	Average quantity 32 ounces; trace of albumen occasionally; marked indigo reaction	M. 97·8°; E. 98°	M. 93·2°; E. 95·2°	Relieved.

TABLE VIII (*continued*).

Initials, age, and sex.	History before admission.	General symptoms.	Facies.	Speech.	Urine.	Temperature.		Result.
						Highest.	Lowest.	
S. M., 52, F.	After every confinement had puffiness of face, which soon disappeared. After birth of last child noticed swelling of feet and abdomen, increased micturition, slowness in movement, failure of memory, chilliness, and tendency for head to drop forwards on to chest	Scalp scurfy; hair scanty; head drops on to sternum and so causes dysphagia; thyroid gland very small; skin everywhere dry, scurfy, and glazed; hands and forearms livid; nausea; loss of appetite; pulse 42, feeble, but regular; signs of bronchitis, most marked at right apex; no headache; occasional giddiness and staggering; eyes suffused; conjunctiva slightly congested; no pain anywhere; no affection of sight, or hearing. Delirium set in 2 days after admission, the evacuations were passed in bed, and death took place on the 13th day	Expression heavy; circumscribed flush on each cheek, more marked on the left side; outer angle of eyes drooping; lips blue and puffy	Deliberate, indistinct, and "leathery"	Average quantity 45 ounces; trace of albumen; a few crystals of oxalate of lime; casts doubtful	M. 92·8°; E. 94·4°	M. 77°; E. 87·6°	Died. P.M. examination: Much subarachnoid fluid over posterior two thirds of vertex, flattening convolutions and widening sulci; effusion into left pleura and pericardium; left ventricle hypertrophied; capsules of kidneys non-adherent; cortex somewhat narrow, not firm; thyroid very small, lies only on left side of trachea, posterior third of tongue and mucous membrane of larynx swollen; the superficial fascia of the neck and thorax was pale and œdematous-looking, but exuded little fluid on pressure.

NOTE.—The thermometer only registers 85°, but 77° was calculated from the height of the mercury below 85°.

Table IX—*Diabetes.*

Initials, age, and sex.	History.	General symptoms.	Urine.			Complications.	Remarks.
			Quantity.	Sp. gr.	Sugar.		
J. M., 16, male	Increased frequency of micturition, thirst, voracious appetite, for 5 months; no emaciation noticed	Tongue slightly coated; teeth decayed; much thirst; good appetite; bowels confined; skin dry and rough; sight good. Patient gained slightly in weight during treatment	20 to 160 ounces	1036 to 1052	600 to 6396 grs. per diem.	None	Special diabetic diet; Liq. Arsenici Chlor. ♏iij, Acidi Hydrochlor. ♏xx, t. d. s.; afterwards Cod. Sulph., gr. j, b. d. s. Relieved.
J. B., 29, male	Thirst, ravenous appetite, increased frequency of micturition, faintness, emaciation, and failure of sight for 11 months	Thin; skin dry and harsh; tongue flabby and coated; appetite voracious; much thirst; bowels regular; headache; no cataract. Slight increase in weight during treatment	142 to 272 ounces	1033 to 1040	4320 to 7200 grs. per diem.	None	Ditto.
J. M., 24, male	Thirst and increased quantity of urine for 9 months; emaciation for 4 months; appetite has remained good	Face thin and pale; eyes puffy; tongue red and dry; much thirst; appetite very good; breath has a decidedly sweet odour. No increase in weight of patient. Subsequently obstinate diarrhœa, loss of appetite, with occasional vomiting, set in, together with troublesome cough	12 (?) to 262 ounces	1010 to 1049	Much; exact quantity not stated	Urticaria, purpura, diarrhœa, phthisis, effusion into right pleura	Under full doses of opium and mixed diet; the sugar on one occasion disappeared from the urine. Relieved.
J. P., 64, male	Increased frequency of micturition, thirst, hunger, and emaciation 3 years ago; afterwards gangrene of fingers and toes; got much better. One month ago symptoms returned; deafness came on, teeth fell out, and bowels became very relaxed	Mouth dry; no thirst; appetite moderate; breath sweet; tongue red and cracked; teeth mostly absent; gums highly red and retracted; stools pasty and liquid; hands and feet cold; very deaf; no affection of sight	55 to 120 ounces	1030 to 1034	Much	Two patches of superficial gangrene on dorsum of right forearm and outer surface of left leg	Milk diet; Tinct. Ferri Perchlor. ♏x, Ext. Ergot. liq. ♏xij, t. d. s.; Pil. Saponis co. gr. v, o.n. Relieved.

TABLE IX (*continued*).

Initials, age, and sex.	History.	General symptoms.	Urine.			Complications.	Remarks.
			Quantity.	Sp. gr.	Sugar.		
W. B., 24, male	Increased frequency of micturition for 18 months; emaciation noticed 2 months ago	Emaciated, weak; tongue pale and dry; appetite much increased; great thirst; bowels confined; eyesight dim; no cataract; skin very dry. Gained about 2 lbs. in weight during treatment. Readmitted three months afterwards with increased weakness, great drowsiness, and loss of appetite	80 to 400 ounces	1030 to 1047	4320 to 6720 grs.	Left pleurisy	Full diet, special diabetic regimen, with gluten bread and almond biscuits, and the milk treatment, were successively tried without benefit. Opii, gr. j, o. n. The drug could not be increased in consequence of the great drowsiness of the patient. Unrelieved.
S. H., 33, female	Miscarriage 6 months ago; since then weakness, loss of flesh, thirst, increased appetite, increased quantity of urine, occasional diarrhœa, loss of hair, cough, and dimness of sight	Emaciated; skin dry, wrinkled in parts; hair thin; weakness; much thirst; tongue dry and red; sugary taste in mouth; soreness and redness of gums; bowels confined; slight cough; lungs normal; sleeps badly; headache; catamenia absent since illness. Appetite failed and urine almost suppressed just before death, which took place on the 14th day after admission	Varied from a few ounces, just before death, to 338 ounces	1035 to 1045	Much; quantity estimated on one occasion, when it was 6670 grs.	Albuminuria	Ordinary mixed diet with extra milk, and special diabetic regimen, successively failed. Tinct. Opii ♏xv, 6tis horis, and Ammon. Chlorid. gr. xx, also proved useless. *Post-mortem examination.*—Liver large and pale; kidneys very large, pale, apparently healthy; lungs congested and œdematous at bases; brain injected on surface, excess of sub-arachnoid fluid.

Table X.—*Chorea.*

Initials, age, and sex.	History.	Invasion.	General symptoms.	Sensation.	Speech.	Mental condition.	Heart.	Remarks.
J. J., 11, male	Scarlet fever 7 years ago. Chorea from fright 2 years ago	Present attack began 6 weeks ago; left side first affected, then became general	Face flushed; movements general, but most marked in left leg; walks fairly; phosphates in urine; slight pyrexia on two or three occasions	—	Not affected	Not impaired	Slight hypertrophy of heart, loud systolic murmur at apex, double murmur at base	Discharged cured on the 48th day after admission. Liq. arsenicalis mv, t. d. s.
H. A., 10, male	No scarlet fever or rheumatism; always an excitable child. Chorea from fright 1 year ago	Began 3 months ago on right side; speech affected; urine passed involuntarily; some pain, swelling, and tenderness of joints 6 weeks ago	General choreic movements, most marked on right side; walks unsteadily; pupils dilated; respiration and deglutition jerky; urine passed in bed contains phosphates; loss of control over rectum; sleeps fairly well	Not impaired	Articulation difficult	—	Hypertrophied, rough systolic murmur at apex, second sound over pulmonary area accentuated	Discharged cured on the 28th day. Liq. arsenicalis.
G. C., 9, male	No scarlet fever or acute rheumatism; has had worms; blow on head 6 weeks ago	1 week after injury to head had general choreic movements, worse on left side	Expression vacant; pain down left arm and leg, with slight loss of power; movements general, but slight; sleeps well	—	—	Not impaired	Normal	Discharged cured on the 11th day.
C. B., 15, male	—	—	General movements equal on both sides, readily controlled by patient; inspiration jerky; deglutition slightly affected; lithates in urine; erythema on back	—	Much impaired, words blurted out in an irregular manner, and sometimes slurred over	Condition almost hysterical, very emotional, tendency to laugh or cry without cause, easily excited	Dulness not increased, loud systolic murmur at apex	Discharged cured on the 68th day. Liq. arsenicalis.

TABLE X—*continued.*

Initials, age, and sex.	History.	Invasion.	General symptoms.	Sensation.	Speech.	Mental condition.	Heart.	Remarks.
W. M., 27, male	1 sister has had chorea; patient had rheumatism 9 years ago; has been very intemperate; for 2 years has had occasional twitchings of face and limbs	Movements began 3 days ago, after a debauch; face and limbs affected; great difficulty in breathing	Buzzing in ears; spasmodic movements of arms and face; no loss of power; respiration and swallowing difficult and jerky; sleeps badly; some occipital headache	—	Articulation is difficult, and effected as though patient were choking	—	Not hypertrophied; soft systolic murmur at apex, not heard in axilla	Discharged cured on the 6th day.
W. S., 11, male	Has had no acute rheumatism; amputation of forearm; bone exposed for 6 months	Came on suddenly 2 weeks ago	Expression foolish; movements general; sleeps well	—	Not impaired	Not impaired	Normal	Discharged cured on the 21st day. Liq. Sodæ Arsen., ♏iij; Pot. Bromid., gr. x, t.d.s.
H. N., 10, male	No scarlet fever or rheumatism; has been employed at a theatre; always excitable	Pain in chest for 6 weeks; choreic movements for a week	Pale, fairly nourished; pupils much dilated; slight choreic movements of right arm and leg; phosphates in urine	—	—	—	Hypertrophied, presystolic murmur at apex, double pericardial friction sound heard before admission	Discharged relieved on the 41st day. Liq. Arsenicalis, ♏ij, t.d.s.
A. B., 18, male	Scarlet fever 8 years ago; rheumatic fever 6 weeks ago. Is subject to threadworms. 15 months ago	1 week ago became nervous and depressed; movements noticed 2 days afterwards	Face flushed; general and violent choreic movements; petechial eruption on arms and legs; herpes on lips; sleeps badly; evacuations passed in bed; temperature slightly	—	Articulation is thick	Violent, very delirious, constant delusions	Not enlarged, systolic murmur at apex	Died on the 18th day. *Post-mortem examination.*—Recent lymph over base of heart; subpericardial petechiæ; heart normal in size;

	had epistaxis and melæna, which lasted 3 months		elevated, the day of death ranged from 99·7° to 104·4°; sleeps badly; lithates in urine		warty outgrowths along lower margin of lunulæ of aortic valves; recent vegetations on auricular aspect of mitral; marked but not intense congestion of brain, cord, and membranes; slight excess of subarachnoid fluid			
E.W., 12, female	No previous illness	Began in face left arm and leg 2 months ago	Face flushed; general choreic movements; urates in urine	—	—	—	Not enlarged, systolic murmur at apex, thrill attending systole	Contracted scarlet fever on the 35th day, followed by rheumatism and pericarditis. Discharged cured on the 92nd day. Pot. Bromid., gr. xx, t. d. s.
A. N., 18, female	Acute rheumatism 4 months ago	Began in arms and hands 6 days ago; soon became restless, and complained of headache	Flushed, expression wild; slight movements of right arm and leg; face not affected; sleeps badly; refuses food	Not impaired	Not impaired	Very noisy, tries to get out of bed, muttering delirium	Dulness not increased, loud systolic murmur at apex	Wrists and metacarpal joints became red, swollen, and tender, with moderate pyrexia 2 days after admission. Pot. Bromid., gr. xxx, t. d. s., and Inject. Morph., gr. ⅓, p. r. n. Discharged relieved on the 45th day, the mental condition being unimproved
E. B., 13, female	Acute rheumatism 2 years ago; chorea 1 year ago	Began 1 month ago in right arm and leg	Right side chiefly affected; left side nearly free; walks well	—	—	—	Normal	Discharged cured on the 48th day. Zinci Sulph., gr. j, t. d. s.
A. L., 7, female	No acute rheumatism. Strumous abscess round knee-joint for many months	Began suddenly 2 weeks ago	General movements, but most marked on face and right side; walks with great difficulty; some dysphagia; jerky respiration; slight pyrexia occasionally; phosphates in urine	—	Complete aphasia, afterwards articulation was jerky and slurred	Taciturn, refuses her food sometimes, has occasional fits of screaming	Normal	Discharged cured on the 68th day. Liq. Arsenicalis, mij, t. d. s.

TABLE X—*continued.*

Initials, age, and sex.	History.	Invasion.	General symptoms.	Sensation.	Speech.	Mental condition.	Heart.	Remarks.
S. G., 14, female	No acute rheumatism. History of fright just before present attack	Began 2 weeks ago	Flushed; general movements; cannot feed herself; swallows with difficulty; sleeps badly; loss of power in right arm	Slight anæsthesia of left arm and leg	Complete aphasia for about a fortnight	Taciturn, and at times violent	Not hypertrophied, soft systolic murmur at apex	Discharged cured on the 71st day. Chloral Hyd., gr. x, Pot. Bromid., gr. x, t. d. s. Afterwards Zinci Sulph., gr. ij to gr. iv, t. d. s., with Inject. Morph., gr. $\frac{1}{6}$, p. r. n.
E. M., 20, female	Convulsions during dentition; acute rheumatism 10 years ago; had a fall 6 weeks ago	Began, 3 days after fall, in left arm; 10 days ago movements became general, delusions came on, and she has been very irritable	Movements general, but most marked on left side, the power of which is markedly impaired. Some paresis of right arm; face not affected; no dysphagia; sleeps well; refuses food sometimes	Total anæsthesia of left arm and leg; partial anæsthesia of right arm	Slightly affected occasionally	Much impaired, very restless and violent, suicidal, has delusions	Normal	Discharged relieved on the 77th day, the mental condition being unimproved. Chloral Hyd., gr. xxx, o. n.; Succ. Conii, ʒij—ʒvij, b. d. s.; afterwards Pil. Saponis co., gr. v, t.d.s., and shower-bath occasionally.
M. S., 14, female	No acute rheumatism. Chorea 2 years ago after fracture of arm from being run over	Came on 2 months ago after being struck on the arm previously fractured. Movements began next day, and said to be general	General slight choreic movements; occasionally headache	—	Not affected	Not impaired	Normal	Discharged relieved on the 37th day. Liq. Arsenicalis, ɱij, t. d. s.; afterwards Ammon. Bromid., gr. xx, Chloral Hyd., gr. x, o. n.

S. D., 6, female	Acute rheumatism 2 months ago	Began 6 weeks ago	Face flushed; general choreic movements; sleeps well	—	Slightly drawling	Not impaired	Hypertrophied, systolic murmur at apex and over pulmonary artery	Discharged cured on the 46th day
J. C., 14, female	Acute rheumatism 4 years ago; chorea 3 weeks afterwards	Began 1 month ago in both arms; legs not affected; speech impaired	Choreic movements of both arms, especially the left; left leg slightly affected; sleeps well; carbuncular swelling on right shoulder	—	Slightly affected	Rather emotional	Normal	Discharged cured on the 35th day. Liq. Arsenicalis, ♏v, b. d. s.
E. S., 10, female	Chorea 1 year ago	Began on right side 2 months ago	General movements, chiefly of right side; slight paresis of right arm	—	Slightly affected	—	Normal	Discharged cured on the 26th day
E. B., 16, female	Chorea 5 years ago; 2nd attack 3 months afterwards; occasional twitchings since; acute rheumatism 6 weeks ago, followed by chorea	Began in arms, legs, and face 1 week ago	Both arms and legs affected, but the left hand moves more than the right; decided loss of power of right hand; respirations irregular; sleeps badly; scaly eruption on cheeks	Anæsthesia of right side, most marked in leg	Slightly affected	Perception blunted, restless at night, and calls out in her sleep	Apparently dulness is not increased, systolic murmur at apex	Discharged cured on the 32nd day. Liq. Arsenicalis, ♏v, b. d. s.
E. R., 15, female	No acute rheumatism; enlarged glands in neck for 6 months	Began in left side 1 month ago	Slight choreic movements of head, left arm, and both legs; paresis of left arm; enlarged glands on left side of neck; temperature occasionally elevated; headache sometimes; fissure of rectum	Anæsthesia of left arm and leg	—	—	Systolic murmur over pulmonary artery	Discharged cured on the 56th day. Pot. Iod., gr. iij, Pot. Chlor., gr. v, t. d. s.

SPECIAL ANALYSES AND ABSTRACTS.

I.—RÖTHELN.

Two cases, both males. Invasion in both was very short, lasting only a few hours. The eruption was general, not crescentic, fading on pressure, and in one case not raised above the surface. No coryza; conjunctivæ slightly suffused, and congestion of fauces, uvula, and tonsils, present in 1 case. General symptoms very slight. Highest temp. 103°; no pyrexia after fourth day in either case.

II.—MEASLES.

Five males, 3 females. In 1 case cough was the first symptom, in 3 coryza, in 2 cough and coryza, and in 1 (fatal case) the rash preceded the other symptoms. The eruption appeared on the second day in 4 cases, on the fourth day in 2, and not until the eighth in 1 case. There was bronchitis in 4 cases. In the fatal case obstinate diarrhœa, epistaxis, and bronchitis with lobular pneumonia, were noticed. The highest temp., 104°·5, occurred in this case. Seven out of the 8 patients contracted the disease in the hospital.

III.—VARIOLA.

Three cases, males. One case, which was confluent, was transferred at once to the union. In 1 case, which was hæmorrhagic, there was a history of only one day's illness; on admission there was a petechial eruption, most marked on trunk and thighs, and an universal scarlet appearance of the skin; the fauces were red and swollen; on the extensor surfaces of both arms a papular eruption, distinctly shotty to the touch, was noticed, and a few vesicles were seen in the roof of the mouth. There was intense lumbar pain and vomiting, with sore throat; no delirium; 1 bad vaccine mark on right arm. Second day temp. rose to 107°·8° in the morning; there was albuminuria, and a few papules were noticed on the face. Died on the ninth day.

Post-mortem.—A few small petechiæ beneath pericardium, in endocardium, in substance of heart; beneath left pleura and in lungs hæmorrhages were larger,

and beneath mucous membrane of larynx and trachea there was much effused blood; liver pale and flabby; cortex of kidneys soft, pale and opaque; lower lobe of left lung collapsed.

The third case was a mild attack of V. discreta.

IV.—SCARLET FEVER.

Twenty-three cases, 6 males, 17 females. The early symptoms were vomiting, headache, shivering and sore throat; the eruption appeared from twelve hours to four days after invasion; albuminuria was present in 8 cases, pleurisy in 2, pleuro-pneumonia in 2, broncho-pneumonia and collapse of lungs in 1, suppurating glands in 2, discharge from the ears in 2, discharge from the nose in 1, vomiting (uræmic) in 1, and diarrhœa in 2.

Four cases were fatal. In 1 there was bronchitis, in 3 broncho-pneumonia, in 2 pleurisy, in 3 the kidneys were inflamed, in 3 the solitary glands of the intestine were swollen, and in 1 Peyer's patches were unduly prominent, and the mesenteric glands enlarged.

V.—ENTERIC FEVER—FATAL CASES.

Male, æt. 17. Intense headache and loss of appetite eight days before admission, followed, after a week, by delirium.

Condition on admission.—Expression heavy; dorsal decubitus; skin hot and dry; temp. 103·5°; abdomen not distended or tender; spleen slightly enlarged; tongue furred in the centre, red at tip and edges, inclined to be dry; much thirst; loss of appetite; bowels confined; slight delirium at night; urine contains a little albumen; typhoid spots on abdomen and back.

Progress.—Second day: spleen more enlarged and tender; bowels confined; face dusky. Third day: teeth covered with sordes; a few fresh spots on abdomen; slight tenderness in right iliac fossa. Fourth day: delirious all day; bowels opened by enema; takes nourishment well. Fifth day: in typhoid state; stools contain blood; bronchitis; still delirious. Sixth day: motions contain much blood. Ninth day: very restless; motions passed in bed, contain no blood; pulse 120, very dicrotous. Tenth day: left shoulder swollen and tender. Thirteenth day: extensive ecchymosis extending from left shoulder to elbow; general condition much the same. Fifteenth day: arm still more swollen, but hand is warm, and radial pulse readily felt; face very pale; hands tremulous; evacuations passed in bed. Died on the sixteenth day after admission, being the twenty-fourth of the disease.

Highest temp. was on the evening of the second day, 105·2°. On the sixth day there was a marked lowering of temp., due, doubtless, to the hæmorrhage; from the sixth to the ninth day the temp. continued much the same, and the morning remissions were fairly marked. On the eleventh day the evening temp. rose to 104·8°; the temp. fell below normal on the day of death. From the beginning the morning remissions were very slight.

Post-mortem examination.—Diffuse cellular inflammation of left arm; small

ecchymoses in subcutaneous tissue; no clot in axillary vein or artery. About half a dozen ulcers scattered through lower foot of ileum, they correspond to Peyer's patches, and the floor seems to be formed chiefly by the muscular coat; mesenteric glands swollen; spleen enlarged; lungs congested and collapsed; bronchitis.

Male, æt. 20. Shivering and malaise three days ago; vomited a little on day of admission.

Condition on admission.—Face flushed; skin hot and dry; erythematous blush on neck and chest; fauces congested; slight bronchitis; tongue furred; bowels confined; spleen not enlarged; temp. 106°.

Progress.—Second day: slight diarrhœa, vomiting; abdomen a little tender; delirious; temp. 105·6° to 106·4°. Third day: more diarrhœa; much delirium; no erythema on chest; sudamina; evacuations passed involuntarily; albuminuria; pulse 140, running; temp. 105·2° to 106·4°. Fourth day: condition the same; temp. 105·2° to 106°. Fifth day: lies in complete typhoid state; more albumen in the urine; temp. above 105° all day. Sixth day: diarrhœa continues; respiration very irregular; temp. 104° to 105·4°; a few typhoid spots on abdomen. Eighth day: more spots; highest temp. 103·4°; crepitation at both bases of lungs. Twelfth day: left pleurisy with effusion. The symptoms gradually diminished, and the temperature became normal on the twenty-sixth day after admission. On the thirty-fourth day the chest was healthy. On the thirty-sixth day the temp. rose to 103·6° in the evening, and on the thirty-eighth temp. ranged from 103·4° to 106°. Cold sponging was used to reduce the fever. All the symptoms returned, and patient died on the forty-fourth day after admission, being the eighth of the relapse. No post-mortem examination.

Female, æt. 10. Shivering, nausea, and headache five days before admission.

Condition on admission.—Tongue furred; thirst; no diarrhœa; slight tenderness in right iliac fossa; no spots; spleen enlarged; crepitation at base of left lung; temp. 101·6°.

Progress.—Second day: much delirium; temp. 103° to 104·6°. From twelfth to the twentieth day the temp. was normal. On the twenty-second day the temp. rose to 100°, and a relapse set in. On the twenty-eighth day there was sudden abdominal pain, vomiting, and diarrhœa, much prostration, and thoracic respiration; the temperature was lowered slightly. On the thirty-first day temp. ranged from 99·4° to 102°, and death took place. The general symptoms in this case were mild.

Post-mortem examination.—Recent peritonitis; Peyer's patches swollen, but not ulcerated; in lower part of ileum are several cicatrised ulcers, and near the ileo-cæcal valve one had perforated; much recent inflammation and sloughing of the solitary glands in large intestine; spleen enlarged; mesenteric glands swollen.

Female, æt. 22. Admitted for bronchocele; contracted disease in the hospital. On the forty-third day after admission had headache and vomiting; the temp. was slightly raised on the thirty-ninth day, and on the fortieth was 102° in the evening. The symptoms were very vague for some days, but on the twentieth day after the temp. was noticed to be elevated, diarrhœa set in. Death took place on the thirty-third day.

Female, æt. 29. Diarrhœa for three weeks, vomited four days ago.

Condition on admission.—Tongue furred in centre, red at tip and edges; much thirst; appetite good; no distension or tenderness of abdomen; no diarrhœa; spleen not enlarged; sleeps badly; headache; temp. 103° in the evening.

Progress.—Third day: some diarrhœa, stools liquid, yellow, and alkaline; temp. a.m. 104°, p.m. 103·8°; some tenderness in right iliac region; spleen enlarged. Sixth day: temp. remains much the same, the morning remissions being very slight; diarrhœa continues; some vomiting; has been delirious all night; no spots. Eighth day: symptoms continue; crepitation at bases of lungs; evacuations passed in bed. Ninth day: much quieter; some albuminuria; highest temp. 103·2° p.m. There was an improvement in the mental condition on the eleventh day, but the prostration increased, and death took place on the twelfth day after admission.

Post-mortem examination.—No peritonitis; mesenteric glands enlarged; Peyer's patches and solitary follicles swollen, and scattered up and down are some cicatrizing ulcers which seem comparatively old; some small ulcers in large intestine; spleen large; caseous masses at apices of lungs; broncho-pneumonia at right base.

Female, æt. 13. Patient had been several times in the hospital, suffering from mitral disease and pulmonary abscess. During her last stay she had been sleeping next to a patient suffering from enteric fever. Eleven days after being discharged she was attacked with vomiting and shivering, preceded by diarrhœa, for about three days previously.

Condition on admission.—Tongue very coated; thirsty; abdomen distended and tender; mitral systolic murmur; expectorates much offensive pus; signs of cavity at base of left lung; urine contains much albumen and some hyaline casts; temp. 102·8°.

Progress.—Temp. ranged from 102·6° to 103·6°, the morning remissions being slightly marked and sometimes absent. On the fifth day the abdomen was very tender and the stools light and offensive; temp. 102·6° to 102·8°. Seventh day: coughed up about 8 ounces of bright red blood; crepitation over front of right lung; pulse 144, jerky; face pale; much diarrhœa; temp. 102·2° to 102·8°; died.

Post-mortem examination.—Lower lobe of left lung atrophied and bronchi much dilated; upper lobe of right lung very congested and friable; spleen enlarged, congested, and friable; mesenteric glands swollen; Peyer's patches in lower part of ileum much swollen, with brown sloughs on surface; fibrous vegetations on auricular aspect of mitral valve.

Female, æt. 16. Malaise, vomiting and drowsiness for fourteen days; diarrhœa for a week.

Condition on admission.—Very prostrate; tongue coated in centre, red at margins; no appetite; much thirst; bowels confined; abdomen distended, not tender; some gurgling in iliac fossa; no spots; temp. 102° to 103·6°.

Progress.—Third day: temp. 104°, morning remissions absent; sordes on teeth; pulse 120, weak and compressible; motions passed in bed. Fourth day: motions like pea-soup; delirious at night; abdomen distended and immovable; no spots; temp. 103·2° to 104·4°. Seventh day: pain in abdomen, which is very

tender, distended, and motionless; dorsal decubitus; temp. 102° to 104·7°. Ninth day: much vomiting; no pain; pulse almost imperceptible; temp. 100·6° to 101·8°; died.

Post-mortem examination.—Recent peritonitis; typhoid ulcers scattered through ileum for lower four feet; perforation of an ulcer about six inches from ileo-cæcal valve; broncho-pneumonia; spleen much enlarged.

VI.—DIPHTHERIA.

Nine males, 9 females. Three cases died within a few hours after admission, and of them no history is given. Two out of the three were examined post-mortem. Two patients contracted the disease in the hospital. The initial symptoms varied considerably. In 4, sore throat, was first noticed, in 5 "croupy" cough and dyspnœa, in 2 vomiting, in 2 shivering, and in 1 marked coryza. The following cases are the most important:

Male, æt. 6. Dyspnœa and "croupy" cough; bronchitis; fauces congested, no membrane; herpes frontalis on the third day; slight albuminuria on fifth; right pneumonia on tenth; highest temp. 104°; convalescent on the thirtieth day.

Male, æt. 6. Sore throat, no cough; patch of membrane on right tonsil; slight albuminuria on tenth day; highest temp. 104·8° on first day; convalescent on the fifth day.

Male, æt. 5. Slight cough; patch on right tonsil; fauces congested; temp. 102·6° on first day, normal on the second day.

Male, æt. 14 months. Very livid; great dyspnœa; no cough, no membrane, glands not enlarged; constant diarrhœa and vomiting; temp. 102·8° to 104·6° on second day, 105° on third day; tracheotomy on admission relieved symptoms for a time, but death ensued on the fourth day.

Post-mortem examination.—Small patch of membrane above vocal cords; bronchitis and pulmonary collapse; Peyer's patches swollen and congested.

Male, æt. 3. Stridulous breathing; small patch on right tonsil; slight albuminuria on admission; highest temp. 103·4° on first day, normal on the eighth day; tracheotomy was performed on the second day; convalescent on the twenty-second day.

Male, æt. 1. Had been ill five days; no history given.

Post-mortem examination.—Firmly adherent, thick membrane on tonsils, epiglottis, larynx, and slightly on pharynx; broncho-pneumonia in right lung.

Female, æt. 26. Difficult and stridulous breathing; no membrane; glands not enlarged; laryngotomy was performed soon after admission; some membrane coughed up through tube; temp. 104° p.m. Died on the third day.

Post-mortem examination.—Larynx blocked by membrane, which extends into trachea and larger bronchi; recent infarcts in lungs.

Female, æt. 18 months. Breathing stridulous; "croupy" cough; fauces red and swollen; no membrane; glands enlarged. Tracheotomy the day after

admission. On the fourth day there was acute bronchitis; some membrane was coughed up through tube; temp. rose to 106·5° p.m., but was reduced by cold sponging to 100·8°. On the fifth day temp. rose to 105°, but was reduced to 101·7° by sponging with iced water. Death took place on the sixth day.

Post-mortem examination.—Larynx, trachea, and bronchi much injected, small patch of membrane on tip of epiglottis.

Female, æt. 7. Very prostrate and weak; membrane on and behind both tonsils; glands enlarged; no cough; no dyspnœa; highest temp. 104·6° p.m. on the second day, normal on the fourth day. On the thirteenth day temp. was 103° p.m., and there was slight albuminuria; a small patch of membrane seen on left tonsil; temp. became normal on the third day. Sulphurous acid was applied to the throat in the form of spray several times a day.

Female, æt. 7. Sore throat; fauces swollen; no membrane; short, stridulous cough; slight albuminuria. On the second day some membrane was coughed up, and on the ninth there was a patch on right tonsil and slight bronchitis. Tracheotomy was performed on the eleventh day, Pyrexia throughout was moderate, but the temp. was not normal until the twenty-second day.

Female, æt. 10. No history.

Post-mortem examination.—False membrane on posterior surface of epiglottis and back of soft palate; subcutaneous hæmorrhages in eyelids; coagula at nose, mouth and vagina; hæmorrhages in pericardium, pleuræ, peritoneum, and in the substance of most organs; the bladder was filled with a soft coagulum; solitary glands were prominent in small intestine.

VII.—POST-DIPHTHERITIC PARALYSIS.

Three cases—2 males, 1 female.

Female, æt. 8. Sore throat 2 months ago. Paralysis of soft palate and ciliary muscle.

Male æt. 4. Sore throat, malaise, and feverishness, 6 weeks ago. Loss of power of legs; paralysis of soft palate.

Male, æt. 12. Sore throat 2 months ago. Paralysis of soft palate and ciliary muscle.

VIII.—ERYSIPELAS.

Ten cases—6 males, 4 females. One contracted the disease in the hospital; 9 cases were facial; 1 affected the scalp only. One patient had one previous attack, and another had had the disease twice. The invasion was ushered in by rigors in 3, by headache in 3, by vomiting in 2, by drowsiness in 1, and by itching of the head in 1. There was delirium in 4, albuminuria in 2, discharge from the nose in 2, diarrhœa in 2, pleuro-pneumonia in 1, sloughing of the right eyelid in 1, and in 1 case erysipelas of the penis and scrotum, with acute eczema over the whole body, appeared after admission. The highest temp. was 104·8°. All the cases were cured.

IX.—ICHTHYOSIS.

One male and 1 female.

Female, æt. 18 months. Skin generally dry and harsh, and on the chest is covered by dry, brownish crust, and mapped out into polygonal area; much itchiness; ectropion of both eyelids, alæ nasi everted; ears much altered, the lobules being drawn forwards so as nearly to cover auditory meatus. The skin was washed daily in weak carbolic solution, but on the tenth day vomiting, black urine, and other symptoms of carbolic acid poisoning, set in. On the thirty-fifth day the child contracted measles. Discharged relieved on the fifty-fifth day.

Male, æt. 9, a cousin of patient's is similarly affected. Skin thick, black, and scaly, and divided into irregular squares by fissures; face is covered by a thinner layer; there is ectropion of both eyelids on each side, and the nostrils are dilated and everted; ears flattened and pinna almost continuous with the scalp; palms and soles are rough and dry, but not scaly; constant itchiness of skin. Patient was relieved and discharged on the one hundred and eighty-first day.

X.—PHTHISIS—FATAL CASES.

Sixty-three cases—41 males, 22 females. Nineteen males and 7 females died. The following fatal cases call for special notice:

Male, æt. 54. Malaise, shivering, fever, and constant cough six weeks ago. On admission there was consolidation and pleurisy on right side; temp. from 133·9° to 106·2°, with rigors; liver much enlarged and tender. The rigors and high temp. recurred at irregular intervals until death, which took place on the twenty-seventh day.

Post-mortem examination.—Large hepatic abscess had ruptured and caused acute peritonitis: spleen enlarged; cavities in both lungs; no tubercle.

Male, æt. 36. Aphonia; œdema of legs; ascites; signs of cavity at right apex; diarrhœa; highest temp. 101°.

Post-mortem examination.—Tubercle in both lungs; small cavities in upper lobe of right lung; effusion into and recent inflammation of right pleura; liver large, fatty, and cirrhotic; tubercular ulcers in ileum; ulceration of larynx.

Male, æt. 38. Consolidation of both lungs, especially of right; temp. never exceeded 101·6° until the day of death, when it rose to 103·9°; some giddiness; internal strabismus of right eye. Tubercular meningitis set in, and death ensued on the thirty-fifth day.

Post-mortem examination.—Small cavities scattered through right lung; tubercles in both lungs, and in pia mata, at vertex, and base of brain. A few also were found in corpus striatum and optic thalamus.

Male, æt. 38. Advanced disease, with cavities in both lungs; moderate diarrhœa; slight albuminuria; highest temp. 102·6°. Died on the third day.

Post-mortem examination.—Large cavities and miliary tubercles in both lungs; fatty liver; ulceration of colon.

Male, æt. 55. Left lung hyper-resonant; signs of consolidation over greater part of right lung; highest temp. 103·4°, profuse night sweats; retention of urine; bowels confined.

Post-mortem examination.—Caseous masses of tubercle, not broken down, scattered through left lung; large tubercular masses in right lung, small cavities at apex; miliary tubercles and small cysts in kidneys; cystitis; liver firm and rather fatty; small ulcers in ileum.

Male, æt. 38. Consolidation at both apices; constant diarrhœa; albuminuria; very excited and restless; highest temp. 102·5°.

Post-mortem examination.—Numerous miliary tubercles in both lungs, many small cavities in left and a few in right lung; kidneys much congested; miliary tubercles at base of brain; ventricles distended.

Male, æt. 27. Profuse hæmoptysis, pleurisy and consolidation of left lung, crepitation and tubular breathing at right apex; melæna; left phlegmasia dolens; highest temp. 105·2°; delirium before death.

Post-mortem examination.—Consolidation of left lung, with large cavity, crossed by many large vessels, at apex; old cavity at right apex; no ulceration of intestine; coagula in both femoral and internal saphenous veins; larynx ulcerated.

Male, æt. 33. Profuse hæmoptysis; complete consolidation of right lung, crepitation at left apex; no albuminuria; highest temp. 104·4°.

Post-mortem examination.—Right pleura thickened and contains tubercle; much effusion into serous cavity; right lung consolidated throughout and displays a few miliary and many yellow tubercles; caseous pneumonia and a few small scattered cavities; yellow tubercles and patches of caseous pneumonia distributed through left lung; kidneys slightly granular.

Male, æt. 40. Hyper-resonance; coarse crepitation and tubular breathing over right lung, similar signs over left lung, with indications of a cavity at apex; much albumen in urine; œdema of legs; temp. not elevated.

Post-mortem examination.—Right lung very large, dotted area of fibroid disease radiating from the root of lung and old cavity at apex; left lung small, fibroid throughout, cavity containing a clot at apex; kidneys large, pale, firm, and slightly lardaceous; extensive ulceration of ileum; spleen and mucous membrane of small intestine lardaceous.

Male, æt. 34. Right lung consolidated throughout, with signs of a cavity at apex, left lung resonant all over, but there are indications of a cavity at apex; much albuminuria; œdema of legs; highest temp. 101°.

Post-mortem examination.—Many small cavities in upper lobe of left lung, with much fibroid growth; miliary tubercles in lower lobe; similar condition of right lung, but lower lobe contains large cheesy masses; fibroid vegetations on auricular aspect of mitral valve; liver, spleen, small intestine, and kidneys amyloid; ulceration of larynx and Peyer's patches.

Male, æt. 17. Father and mother died of phthisis. Pneumothorax and pleurisy on right side; consolidation of left lung; linear atrophy of skin on knee, elbows, and back; highest temp. 104·2°.

Post-mortem examination.—Recent pleurisy in both sides; large cavity, communicating with pleura, in upper lobe of left lung; a few small cavities and

some patches of broncho-pneumonia in right lung; no tubercles; ulceration of ileum and softening of mesenteric glands.

Male, æt. 64. Increased resonance and tubular breathing over both lungs with indications of a cavity at right apex; bowels irregular. On the third day there was sudden pain in abdomen, followed in a few hours by symptoms of acute peritonitis.

Post-mortem examination.—Right lung solid throughout, except at apex, where there is a cavity; left consolidated, no cavity; tubercles in both organs; recent peritonitis; ulceration of small intestine and colon; rupture of three ulcers in ileum; liver fatty; tubercle in pia mater at base of brain.

Male, æt. 22. Resonance over both lungs, with crepitation and general bronchitis; highest temp. 103·8°.

Post-mortem examination.—Miliary tubercles and small cavities in both lungs; liver fatty; old infarct in one kidney; ulcers in small intestine, with tubercles on serous surface corresponding to ulcers.

Female, æt. 30. Palate and uvula red and granular; flattening under both clavicles; prolonged expiration; highest temp. 104·6°. Subsequently crepitation was heard at the apex of left lung.

Post-mortem examination.—Miliary and yellow tubercles scattered through lungs and breaking down at left apex into two or three small cavities; uterus and Fallopian tubes, filled with cheesy matter, beneath which, on the mucous membrane, were many grey tubercles; ulceration of ileum; tubercular peritonitis; tubercle at base of brain.

Female, æt. 40. Dulness over the whole of right lung, with signs of a cavity at apex and crepitation, with tubular breathing, elsewhere; crepitation at left apex, but no dulness; aphthous stomatitis; highest temp. 104°.

Post-mortem examination.—Large cavity in upper lobe of right lung, lower lobe presents extensive broncho-pneumonia and grey tubercles; left lung studded with patches of pneumonia and a few tubercles; liver fatty.

XI.—CONGENITAL CARDIAC DISEASE.

Six males and 3 females. One male and 1 female died; a post-mortem examination was made in 1 case only.

Female, æt. 34. Has always been fairly strong, but has suffered much from palpitation of the heart; had pleurisy on the right side when she was 15 years old; epileptic fits for 12 months. Two days before admission had violent palpitation and vomited a large quantity of black blood. Patient was very anæmic, and after admission had several attacks of hæmatemesis; there was great prominence, visible pulsation, and strong thrill all over precordial region; a loud systolic murmur was heard all over the region of the heart; spinal angular curvature.

Post-mortem examination.—The interauricular septum was very thin, and in it there was a large crescentic opening at the lower border; above this was a small circular perforation; all the valves were healthy; there was a rudimentary

third lobe in left lung; the spleen was situated in the right hypochondrium; the liver, pancreas, stomach, and intestines were all more or less transposed; the mucous membrane of stomach was congested and ecchymosed; posteriorly there was an old puckered cicatrix.

XII.—MITRAL VALVULAR DISEASE.

Eight males, 36 females; 2 males and 7 females died.

History.—10 patients had had one attack of acute rheumatism, 9 had had two attacks, 4 three attacks, 1 four attacks, and 1 six attacks; scarlatinal rheumatism in 1, scarlet fever—probably followed by rheumatism—in 2, gout in 1, syphilis in 1, alcoholism in 1, and winter cough in 2.

Principal symptoms and complications.—Hypertrophy of heart in 31, cardiac thrill in 10, systolic murmur in 23, presystolic in 2, double in 10, tricuspid in 8. Marked œdema of lungs in 2, bronchitis in 11, pleurisy in 7, pleuritic effusion in 3, pleuro-pericardial friction in 1, chronic bronchitis and emphysema in 1, phthisis in 1, broncho-pneumonia in 1, pulmonary abscess in 1, and orthopnœa in 4. There was vomiting in 8, jaundice in 3, peritonitis in 1, ascites in 8, diarrhœa in 4, enlarged liver in 9, enlarged spleen in 2, infarct in spleen in 1, and pulsation of liver in 1. Pericarditis was present in 2, pericardial effusion in 1, angina pectoris in 2, and anæmia in 5. Hæmoptysis in 1, retinal hæmorrhage in 1, epistaxis in 1, purpura in 2. Albuminuria was observed in 9, delirium in 2, left hemiplegia in 1, ovarian tenderness and hysteria in 1, enlarged thyroid (1 probably exophthalmic goître) in 2, herpes zoster in 1, pain and swelling of joints in 2, and gout in 1.

XIII.—AORTIC VALVULAR DISEASE—FATAL CASES.

Six males and 2 females; 3 males and 1 female died.

Male, æt. 50. Acute rheumatism ten years ago; heart hypertrophied, double murmur heard at base and apex; visible pulsation of arteries; pulse collapsing; œdema of lungs; albuminuria; delirium; diarrhœa and melæna.

Post-mortem examination.—Recent peritonitis; mucous membrane of intestines congested, but there is no ulceration or perforation; aortic valves allow of free regurgitation, although not evidently diseased; aorta much dilated and very atheromatous; left ventricle dilated and hypertrophied; kidneys display a few scattered cysts.

Male, æt. 41. Acute rheumatism 14 years ago; great dyspnœa, slight albuminuria; bronchitis; hæmoptysis just before death; constant vomiting and diarrhœa; delirium; heart much hypertrophied; double murmur heard loudest at the base.

Post-mortem examination.—Aortic valves thickened and puckered; pulmonary apoplexy in right lung; much effusion in all the serous cavities.

Male, æt. 42. Gout six years ago; heart hypertrophied; double murmur at

base, systolic at apex; bronchitis and œdema of lungs; liver much enlarged; slight albuminuria; arteries do not pulsate visibly.

Post-mortem examination.—Fibrous thickening of aortic valves, right and left cusps adherent at their margins; mitral slightly thickened, but competent; left ventricle much hypertrophied; great effusion into right pleura.

Female, æt. 45. Heart apparently normal in size, systolic murmur at apex and base indistinctly heard; lividity; orthopnœa; general anasarca; slight albuminuria; signs of bronchitis and emphysema, with œdema at the bases of lungs.

Post-mortem examination.—Aortic valves allow regurgitation of fluid; mitral competent; much congestion of both lungs; bronchi extremely injected; effusion into right pleura; early granular kidney.

XIV.—AORTIC AND MITRAL DISEASE.

Twelve males and 9 females; 4 males and 6 females died.

History.—Six patients had had acute rheumatism, 1 gout, and 1 syphilis; in 1 there was chronic alcoholism, in 3 a history of constant exertion, and in 9 no cause was apparent.

Principal symptoms and complications.—Hypertrophy of the heart in 18, thrill in 8, double murmur at apex and base in 10, of which 3 were systolic and presystolic at the apex, double murmur at base and systolic at apex in 8, systolic at base and apex in 2, systolic at base with systolic and presystolic at apex in 1, tricuspid murmurs in 1. There was adherent pericardium in 1, pericarditis in 4, pericardial effusion in 1, aneurysm of the mitral valve in 1, a suspicion of aortic aneurysm in 1, visible pulsation of arteries in 5, anasarca in 8, ascites in 3, hæmoptysis in 1, hæmatemesis in 1, dyspnœa in 18, bronchitis in 8, pneumonia in 1, emphysema in 1, pulmonary collapse in 1, œdema of lungs in 6, pleurisy in 4, pleuritic effusion in 1, enlarged liver in 3, congested liver in 5, hepatic pulsation in 1, congestion of spleen in 3, enlarged spleen in 2, infarcts in spleen in 1, vomiting in 2, diarrhœa in 3, albuminuria in 9, granular kidney in 2, syncope in 1, deafness in 2, delirium in 1; rheumatic swelling of joints in 1, chorea in 1, right hemiplegia in 1, and cerebral softening in 1.

XV.—ADDISON'S DISEASE.

Male, æt. 30. Has had nausea, loss of appetite, great weakness, with some loss of flesh, headache, and cough for 5 months.

Condition on admission.—Skin of face bronze-coloured, a scar on the forehead remaining white, slight discoloration of neck; pigmentation of axillæ, but not round nipples. Hands and wrists much discoloured, especially on the dorsum, looking as though stained with walnut juice. On the tongue, inside of lips and cheeks, are some spots of pigment. There was dulness with crepitation at the apex of the right lung; the cardiac sounds were normal, but very feeble; no curvature or tenderness of spine.

The day after admission vomiting, constant hiccough, loss of appetite, and

diarrhœa, came on; the patient became very weak and apathetic; the temperature rose 2° or 3° every evening until death, which took place on the eighth day.

Post-mortem examination.—Old cavities at apices of lungs, grey and yellow tubercles scattered freely through both organs; glands at root of lungs caseous and calcareous; liver fatty and slightly cirrhotic; early tubercular disease of small intestine; supra-renal bodies very large, quite hard, and consist of masses of opaque yellow material. No spinal disease.

XVI.—STRICTURE OF ŒSOPHAGUS—FATAL CASES.

Male, æt. 50. Syphilis many years ago; emaciation for four months; dysphagia for three months; loss of voice for three weeks.

Symptoms.—Emaciation; constant vomiting; no hæmatemesis; aphonia, right vocal cord paralysed, obstruction to passage of bougie at a distance of about 12 inches from the mouth. Subsequently a limited patch of dulness in the interscapular region was discovered. Emaciation proceeded rapidly, occasionally attacks of hæmatemesis set in, the temperature was at times elevated, and rigors took place. Death on the eighty-fifth day.

Post-mortem examination.—Glands in superior and posterior mediastina and in gastro-hepatic omentum swollen and infiltrated with new growth; cancerous nodule in anterior edge of liver; the œsophagus opposite the root of lung much ulcerated and involved by surrounding new growth, admitting the passage only of a probe; above the stricture the mucous membrane presents extensive ulceration.

Male, æt. 51.

Symptoms.—Much emaciated; extreme dysphagia; vocal cords come together with difficulty; much induration, with glandular enlargement, around larynx. The day after admission respiration became so embarrassed that tracheotomy was performed. Death on the third day.

Post-mortem examination.—The œsophagus encircled by new growth throughout nearly its whole length. At the upper part there was great constriction, and ulceration of the mucous membrane had taken place; along the posterior wall of trachea, on its mucous surface, was a ridge of malignant growth about two inches long. There was a small fistulous communication between the trachea and the œsophagus at the point of stricture.

Female, æt. 48. Dysphagia for two months, cough for a fortnight.

Symptoms.—Dysphagia, solids being swallowed with much difficulty and appearing to be arrested in the upper part of œsophagus; regurgitation of food; some fulness about upper part of trachea, slight bronchitis, no paralysis of vocal cords. Subsequently there was extreme dyspnœa, and complete aphonia, which was probably nervous. These attacks came on in paroxysms nearly every day, and in the intervals the voice was quite restored. Death took place on the twentieth day in a paroxysm of urgent dyspnœa.

Post-mortem examination.—Stricture of œsophagus about 3 inches long, beginning 2½ inches below epiglottis; mucous membrane undermined and ulcerated; recurrent laryngeal compressed by enlarged glands between trachea and œso-

phagia; over the seat of stricture the œsophagus is adherent to trachea, and between the two is a cyst, the size of a small orange, containing dirty yellow fluid with flaky sediment, which evidently caused pressure on the œsophagus.

XVII.—CIRRHOSIS OF THE LIVER—FATAL CASES.

Five males and 5 females died.

There was a direct history of alcoholism in 8 cases. Aphthous stomatitis was present in 1, severe vomiting in 3, diarrhœa in 7, ascites in 9, jaundice in 6, enlarged spleen in 10, tubercle in liver in 1, enlarged liver in 4, hæmorrhage from gums in 1, epistaxis in 2, hæmatemesis in 2, hæmoptysis in 1, melæna in 2, hæmorrhoids in 2, petechiæ on skin in 1, bronchitis in 8, emphysema in 1, œdema of lungs in 2, pulmonary collapse in 2, pleurisy in 1, pleuritic effusion in 5, tubercle of pleura in 1, pelvic peritonitis in 1, tubercular peritonitis in 1, acute peritonitis in 2, adherent pericardium in 1, pericarditis in 2, mitral disease in 4, albuminuria in 4, granular kidney in 3, cystic kidney in 1, delirium in 3, aphonia in 1, right hemiplegia and aphasia in 1, embolism of left middle cerebral artery in 1; pyrexia was present in 7, the highest temperature being 104°.

XVIII.—CHRONIC NEPHRITIS—FATAL CASES.

Fourteen were cases of granular, 2 of large white, and 1 of lardaceous kidney.

In most of the cases no cause could be discovered. In 1 there was a history of chorea, in 1 of gout, in 2 of alcoholism, in 1 of prolonged suppuration, and in 1 the symptoms dated from parturition. The heart was hypertrophied in 10 cases, in 1 there was mitral disease, and in 1 pericarditis. In 7 there was urgent dyspnœa, in 1 orthopnœa, in 1 fibroid phthisis and tubercle, in 2 pleurisy, in 5 pleuritic effusion, in 1 broncho-pneumonia, in 4 bronchitis, in 1 emphysema, in 6 œdema of lungs, in 2 pulmonary collapse. General dropsy was noticed in 11, ascites in 6, vomiting in 11, diarrhœa in 3, jaundice in 2, gall-stones in 1, enlarged liver in 3, enlarged spleen in 3, peritonitis in 1, epistaxis in 1, hæmatemesis in 2, melæna in 2, cerebral hæmorrhage in 1, retinal hæmorrhage in 4, optic neuritis in 5, detachment of retina in 1, delirium in 4, convulsions in 8, left hemiplegia in 1, right hemiplegia and aphonia in 1, choreiform movements of left arm, due to softening of parietal convolutions on the right side, in 1, internal strabismus in in 1, œdema of arm from thrombosis of axillary vein in 1, old hydatid of liver in 1, ovarian cyst in 1. In 1 the liver, spleen, kidneys and intestines were lardaceous.

XIX.—ACUTE RHEUMATISM.

Forty-four patients were admitted for the first attack, 24 for the second, 7 for the third, 2 for the fourth, 2 for the fifth, 1 for the sixth, and in 2 cases the previous attacks were not stated.

Complications:—

Pericarditis	12

Pericarditis + Mitral regurgitation	17
Pericarditis + Mitral obstruction and regurgitation	1
Pericarditis + Mitral obstruction	1
Pericarditis + Mitral and aortic disease	1
Mitral regurgitation	19
Mitral obstruction and regurgitation	2
Mitral and aortic disease	4
Aortic systolic murmur (probably hæmic)	2
Pulmonic systolic murmur (probably hæmic)	4

There was right pleurisy in 3, left pleurisy in 5, and double pleurisy in 2; left pleuro-pneumonia in 2, double pleuro-pneumonia in 1, phthisis in 1, albuminuria (not due to salicylic acid) in 10, pregnancy in 1, lactation in 2, erythema papulatum on admission in 2, carbuncle in 1, delirium in 1, hysterical mania in 1, herpes labialis in 1, and epistaxis in 1. There was splenic, renal and cerebral embolism in 1 case.

Abstract of fatal case.

Female, æt. 13. Admitted for a third attack of acute rheumatism.

Condition on admission.—Right knee and left wrist red, tender, and swollen; much palpitation and dyspnœa; heart hypertrophied, systolic and presystolic thrill at apex, systolic murmur at apex; temp. 102·6°.

Progress.—The temperature was reduced by salicylate of soda, but in the evening there was a rise of 2° or 3°. A fortnight after admission there was no articular affection, but there was slight yet persistent albuminuria. The patient became anæmic, and was very drowsy. On the sixty-first day the spleen was found to be enlarged and tender, and on the ninety-ninth day there was right hemiplegia and aphasia, with constant tremors of the left hand. The temp. rose considerably for the two days preceding death, ranging from 103° to 106·6°.

Death took place on the one hundred and first day.

Post-mortem examination.—Left ventricle much hypertrophied, irregular warty growths covered with recent red clot on edges of mitral valve; endocardium of left auricle covered with granular and reticulated false membrane, which is readily removed. The surface beneath is dotted with minute elevations. There were many old infarcts in the kidneys, and some quite recent; spleen enlarged and contains three or four large infarcts; the left middle cerebral artery in the fissure of Sylvius was blocked by a central white firm clot with irregular surface, and evidently corresponding with the vegetations on the mitral valve. Around this was dark red, recent clot. The corpus striatum was much softened on the left side, but the optic thalamus only slightly so.

XX.—ACUTE MENINGITIS—FATAL CASES.

Male, æt. 2. Fell on his head four days before admission; had headache next day, and was delirious during the night; sick once on the day of admission.

Condition on admission.—Respirations very rapid, eyes closed, left pupil larger than right, and contracts to light very sluggishly; constant spasmodic contractions of the left orbicularis palpebrarum; protrudes tongue straight; no

paralysis; cries much when aroused; highest temp. 103·8°. Death on the third day.

Post-mortem examination.—Pia mater generally congested, much recent lymph on frontal, temporo-sphenoidal and occipital lobes; substance of brain rather soft; cerebro-spinal fluid is sero-purulent, and greatly in excess; no tubercles.

Female, æt. 22. No history of injury; headache and vomiting for five days, convulsions and unconsciousness the day before admission.

Condition on admission.—Semi-unconscious, conjunctivæ insensible, face livid and injected; sordes on teeth; œdema of feet and ankles. Right arm and leg powerless and frequently affected by rhythmical convulsions, the tongue at the same time being forcibly protruded; respiration and deglutition much embarrassed; eyes directed to right, no strabismus, pupils equal, dilated, and act well to light; no discharge from the ear; general bronchitis; tâches cérébrales well marked; temp. 102°; slight albuminuria; evacuations passed in bed; no delirium.

Progress.—On the fifth day there was some improvement. The unilateral convulsions ceased, but the right hemiplegia still persisted; the evacuations were passed voluntarily; the temp., which had ranged from 98·2° to 103·4°, now did not rise above 100°. The patient again became unconscious, but was not convulsed, and death took place on the tenth day.

Post-mortem examination.—Dura mater over left half of vertex opaque, distended, and intimately adherent to arachnoid and convolutions; posterior frontal, ascending parietal, upper and middle convolutions of occipital lobe broken down into yellow purulent matter; abscess is lined by a thin membrane; centrum ovale majus very soft on the left side.

XXI.—TUBERCULAR MENINGITIS.

There were six deaths, but only three of the cases were examined post mortem.

Male, æt. 6. Father died of phthisis; five brothers and sisters subject to chest complaints. Patient subject to fits from the age of eight months to two years. Seventeen days ago had headache and was drowsy; two or three days afterwards vomited, was convulsed, and became temporarily unconscious. Since then has shivered, vomited, and been delirious; evacuations passed unconsciously.

Condition on admission.—Frequent convulsions affecting the right arm and leg, sometimes beginning with tonic spasms, but usually clonic throughout; eyelids partially closed, conjunctivæ insensible, right pupil larger than left, no strabismus, no change seen in eyes with ophthalmoscope; swallows with difficulty; heart's action irregular; much cutaneous irritability; evacuations passed involuntarily; patient is quite unconscious, sleeps little, and occasionally makes a whining noise, but does not cry out; temp. 98·8°.

Progress.—The day after admission the convulsions ceased, but next day there was external strabismus of the right eye, irregularity of the pulse, and general bronchitis. Subsequently it was noticed that the left arm was almost powerless. Temp. never rose above 101·6°, and for the first two days was normal. Death took place on the sixth day.

Post-mortem examination.—Broncho-pneumonia of both lungs; surface of brain congested, convolutions flattened, surface sticky, excess of cerebro-spinal fluid; membranes at base much congested and thickened by recent lymph; tubercles found chiefly in the fissures of Sylvius and choroid plexus.

Male, æt. 7. Grandfather died of phthisis; father probably phthisical. Patient had a fit when three years old, and for two years has had knee-joint disease; has had discharge from the ear for three months. One week ago had headache, followed in four days by delirium and vomiting, but no shivering.

Condition on admission.—Drowsiness; muttering delirium; much irritability when aroused; tâches cérébrales slightly marked; right convergent strabismus; slight discharge from right ear; some deafness; general headache; temp. 101·8°.

Progress.—No convulsions or paralysis, except the strabismus of the right eye, was noticed. The pupils were found to respond badly to light, the right optic disc was red, hazy, somewhat swollen, and the retinal veins engorged; the left disc was not properly seen; no tubercles in choroid. There was external auditory catarrh and pin-hole perforation of membrana tympani, but this was considered to be unconnected with the cerebral mischief; highest temp. 102·2°. Death took place on the fourth day.

Post-mortem examination.—Excess of sub-arachnoid fluid; numerous grey tubercles in pia mater at base of brain, velum interpositum, and medulla; slight thickening of the membranes; substance of brain congested. A caseous mass, probably tubercular, was found in the apex of the right lung. There were two intussusceptions of the ileum and the retro-peritoneal glands were swollen.

Female, æt. 17. Three weeks ago had pain in the back and legs, retraction of the head, and frequent fits of screaming. Five days before admission she became unconscious, and the evacuations were passed in bed.

Condition on admission.—Partially unconscious, but answers when spoken to loudly; constant delirium, face flushed, frequently cries out, and complains of pain in the back and neck; facial paralysis on the left side; no hemiplegia; tâches cérébrales fairly marked; slight albuminuria; temp. 99°.

Progress.—On the second day there was partial paralysis of the left external rectus, and the tongue was protruded to the left. Subsequently there was found to be double optic neuritis, the right pupil did not contract to light, and there was great pain in the right shoulder and elbow. On the twelfth day patient had a convulsive fit, and afterwards clonic spasms of the right hand were noticed. On the fourteenth day there was hyperæsthesia of the skin over the abdomen, paralysis of both external recti, dilatation of the right pupil, and slight ptosis on the left side. On the eighteenth day there were tremors of both hands, and the optic neuritis was more advanced. Throughout, the temperature was only slightly elevated at intervals, there being periods of complete apyrexia for two or three days at a time. Patient died comatose on the twenty-second day.

Post-mortem examination.—Ventricles contain slight excess of turbid fluid; pia mater at base of brain opaque and thickened by exudation of lymph; which involves also the optic nerves; inflammation extends to under surface of cerebellum; substance of brain around distended ventricles is very soft; no tubercles at base of brain, but some in choroid plexus. There were a few small opaque thickenings in the supra-renal capsules, which were probably tubercular.

XXII.—CEREBRAL TUMOUR.

Three males and 3 females died. Abstract of fatal cases:

Male, æt. 4. Was under treatment in the hospital for disease of the ankle-joint two months ago. Since then has passed his evacuations involuntarily, has been very drowsy, and some spasmodic movements of the face were noticed.

Condition on admission.—Face pale; large, dilated vein runs transversely across right upper eyelid; sleeps continually, eats ravenously, but never asks for food; is very irritable, and cries loudly when disturbed; no pain, but there is general hyperæsthesia of skin; rhythmical tremors of right hand, increased by voluntary effort, but ceasing during sleep; the fingers of the left hand are rigidly flexed, and great pain apparently is caused by attempts at extension. When crying the mouth is drawn up to the right side, and the right eye is partly closed, pupils dilated; early optic neuritis; tongue protruded straight; head somewhat retracted; speech slow; evacuations passed involuntarily; temp. 101° p.m.

Progress.—On the ninety-third day patient vomited, and the temp. rose to 103·2° a.m.; the fever continued with little change until the ninety-eighth day, when the left pupil was noticed to be larger than the right; there was rigidity of the left side of the body and complete unconsciousness. Death took place on the ninety-ninth day, with symptoms of tubercular meningitis.

Post-mortem examination.—Pia mater at base of brain congested and covered with recent lymph; numerous, small, grey tubercles in pia mater in fissures of Sylvius; in the third ventricle there is a tumour, measuring an inch and a half each way, involving the optic thalamus; there was another small mass on the internal surface of left occipital lobe. Both tumours were tubercular.

Male, æt. 4. Has had fits and occipital headache since an attack of whooping-cough three months ago; about two months ago strabismus of the right eye was noticed.

Condition on admission.—Complete blindness, pupils dilated, equal, insensible to light; complete loss of power of lower extremities, sensation and reflex action being unimpaired; slight paralysis and inco-ordination of both arms, especially of the left; paroxysmal attacks of occipital headache; speech indistinct, slow, and drawling; temp. 98·4°.

Progress.—On the eighteenth day patient had an attack of tonic spasms affecting the whole body, attended with loss of consciousness. The evacuations since admission have been passed in bed; rhythmical tremors of the hands when a purposive effort is made; occasional twitching of facial muscles. On the twenty-fourth day there was found to be advanced optic neuritis, passing into atrophy. The patient gradually became worse, no improvement taking place; the fits became more frequent, the limbs rigid, there was left facial paralysis, ulceration of the corneæ, great drowsiness, dysphagia, vomiting on one occasion, and towards the end a pustular eruption appeared on the face; there was extreme and rapid emaciation, the sutures of the skull became much widened, and a decided alteration was observed in the shape of the head. Death took place on the two hundred and nineteenth day.

Post-mortem examination.—Convolutions greatly flattened, and substance of

brain soft; ventricles much distended and contain about two pints of clear fluid; a large firm tumour, about the size of a small orange, occupied and nearly destroyed the left lobe of the cerebellum; on section the tumour was yellowish, semi-transparent, arranged in irregular concentric layers, and evidently tubercular; the pons medulla and posterior lobe of brain were pressed upon and a little softened; the optic nerves were atrophied; in the cortical matter of orbital surface of right frontal lobe was a small tumour, similar in appearance to the other.

Male, æt. 41. Had syphilis twenty-four years ago; had a fit, accompanied by loss of consciousness, one year ago; about seven months before admission the fits became more frequent, there was severe headache, dimness of sight, and one month ago, after a severe fit had left hemiplegia, left facial paralysis and delusions.

Condition on admission.—Severe headache, chiefly occipital, sometimes paroxysmal, slight left hemiplegia and facial paralysis, tongue protruded straight; frequent fits, not always attended by unconsciousness and never by convulsions; sensation of falling backwards; has fixed delusions, old optic neuritis, vision much impaired; no loss of control over sphincters; temp. normal.

Progress.—Frequent attacks of shivering unattended by pyrexia, deviation of the tongue to the left and drawing up of the mouth to the right were subsequently noticed. Death took place on the seventy-ninth day.

Post-mortem examination.—Meningeal vessels much distended; on right side of interpeduncular space is an irregular tumour two inches long, an inch and a quarter broad, pressing on right optic tract and optic nerve, right crus cerebri, but leaving third and fourth nerves free; the right olfactory nerve was also compressed.

Female, æt. 30. Has been "stupid," and sight has been failing for three months; emaciation for five weeks.

Condition on admission.—Occasional delusions, pupils dilated, optic discs very pale, vision nearly absent, left facial paralysis and slight paresis of left arm; temp. normal.

Progress.—On the fifth day it is noted that she is constantly delirious, but answers questions rationally; great drowsiness, is very feeble, all evacuations passed in bed, severe pain at the back of neck, occasional frontal headache, quite blind, pupils unequal at times and not contracting to light. On the thirty-seventh day had a slight fit, during which there was rigidity of the head and limbs. Subsequently she became much quieter, had on one occasion an attack of unconsciousness without convulsions, lasting about two days, and at another time a similar attack of a few minutes' duration. For six days preceding death pyrexia was observed, the temperature ranging on the last day from 105·6° to 107°. Death took place on the hundred and sixty-fifth day.

Post-mortem examination.—Pia mater much injected; a tumour the size of a small orange was found on the under and anterior surface of the right temporo-sphenoidal lobe, the substance of which had been absorbed, and the right middle cerebral artery laid bare in the fissure of Sylvius; the tumour was smooth, and the surface next the brain was covered by a thin vascular membrane, probably pia mater; on the other surface it was very adherent to the dura mater, and there

was some absorption of the petrosal and sphenoid bones. The right optic nerve was flattened and soft, and the right crus a little compressed; no other nerves were involved. On section the tumour was very vascular, granular, and of a purplish colour; it was of a sarcomatous nature, and consisted of fusiform and round cells, with a number of concentric aggregation of cells like birds' nests.

Female, æt. 50. Two weeks ago had tremblings of the right arm and leg, soon followed by loss of power, frontal headache, impairment of sight, sometimes diplopia.

Condition on admission.—Tremors of head and left arm when a purposive effort is made; pupils equal; slight headache.

Progress.—On the seventeenth day was very drowsy, conjunctivæ insensible, some delirium, slight facial paralysis on the left side, tongue deviates to the left when protruded; slight dysphagia. Subsequently there was paralysis and slight anæsthesia of both legs, and paresis of the left arm, great drowsiness, and for the last two days moderate pyrexia. Death took place on the thirty-eighth day.

Post-mortem examination.—Pia mater congested; dura mater adherent to tip of posterior lobe on right side, where there is a large, firm tumour, situated in the posterior lobe, which is nearly destroyed, but leaving the parietal lobule intact.

Female, æt. 34. Had complete loss of power over legs eight years ago after labour; has had pain down the right leg for three months, with tremblings at times.

Condition on admission.—Loss of power over right leg, pain referred chiefly to the right sciatic notch, muscles of right leg slightly atrophied, occasional vomiting after meals; temp. 100·6°.

Progress.—Subsequently pain was complained of in the abdomen, and there was found to be a movable kidney on the right side; the temperature throughout was slightly above the normal; towards the end she became very apathetic and drowsy. There was right facial paralysis, the tongue, when protruded, deviated to the right, the left pupil became dilated; the evacuations were passed in bed, and death took place on the twenty-fourth day.

Post-mortem examination.—A conical tumour, about one inch long, was found growing from the dura mater, and projecting into the right lobe of the cerebellum; examination showed the growth to be a gumma; the right kidney projected completely below the liver, and could be readily pushed nearly to the middle line.

XXIII.—PARAPLEGIA—FATAL CASES.

Male, æt. 60. History of intemperance and continual exposure to damp. Five weeks ago had a sudden attack of shivering and trembling of the legs, and has since been unable to walk without help.

Condition on admission.—Nearly complete paraplegia, with slight rigidity, no anæsthesia, no atrophy of muscles, reflex action unaltered, no spinal curvature, but some tenderness over lumbar and sacral spines; urine slightly alkaline.

Progress.—Slight improvement was noticed at first, but the patient became drowsy on the twenty-fourth day, and shortly afterwards delirious. He rapidly emaciated, became very prostrate, and the evacuations were at the end passed

involuntarily. There was moderate pyrexia, with occasional rigors, throughout. Death took place on the forty-first day.

Post-mortem examination.—Bronchitis; malignant growth around the large bronchi in the lower lobe of right lung; liver fatty and cirrhotic; early granular kidney; softening of the spinal cord in lower cervical and upper dorsal regions.

Male, æt. 25. Syphilis ten months ago; numbness of feet for three weeks; three days ago lost power in his legs suddenly, there was some numbness, and the urine dribbled away.

Condition on admission.—Complete paraplegia, partial anæsthesia up to level of umbilicus, reflex action not altered; a small bleb on right ankle and redness over dorsum of great toe; bladder much distended, urine not offensive, but contains blood and albumen; pain referred to lower dorsal vertebræ, no tenderness, no curvature.

Progress.—The urine, which was drawn off by a catheter, soon became alkaline and very offensive. On the tenth day gangrenous blebs formed on both feet, and a bed-sore appeared over the sacrum; the anæsthesia was more pronounced, and there was troublesome vomiting. The patient rapidly sank, and died on the sixty-seventh day. The temperature throughout was slightly elevated, and rigors occasionally took place, probably due in great measure to catheterism.

Post-mortem examination.—Pyelitis, recent pelvic cellulitis, with psoas abscess on left side, communicating with the bladder; the mucous membrane of the bladder was ulcerated; there was a little softening of the cord in the lower cervical and upper dorsal regions, and the pia mater was somewhat congested.

Male, æt. 50. Had syphilis thirty years ago.

Condition on admission.—Nearly complete paraplegia, with some rigidity; slight anæsthesia; reflex action not increased; evacuations passed involuntarily; occasionally tremors of legs; cicatrices on various parts of the body, and an ulcer, probably syphilitic, on right leg; signs of chronic bronchitis and emphysema.

Progress.—Bed-sores rapidly formed, aphthous ulceration of the mouth came on, and death took place on the hundred and twenty-seventh day. There was pyrexia on one or two occasions, but the temperature towards the end was a little sub-normal.

Post-mortem examination.—Pyelitis, suppurative nephritis, amyloid liver and spleen, prostatic abscess, cystitis; extreme softening of spinal cord above lumbar enlargement.

XXIV.—DISSEMINATED SCLEROSIS.

Male, æt. 32. Difficulty in walking for one year; numbness of fingers and toes for six months. Tremors of legs on movement; some paresis; no anæsthesia; reflex action about normal; patellar reflex absent; arms not affected; no oscillations of head; no vertigo; sight dim, occasional diplopia; slight tremors of tongue when protruded. Discharged relieved on the thirty-fourth day.

Male, æt. 40. Weakness of legs and arms; indistinct articulation for four years. Tremors of head, neck, legs, and arms; some inco-ordination of legs; tendency to fall forwards; no anæsthesia; slight nystagmus; double internal strabismus; no diplopia; hearing on right side impaired; speech jerky and

indistinct, with a tendency to slur over some words; patellar reflex exaggerated; tonsils enlarged. Discharged unrelieved on the hundred and seventh day.

Male, æt. 28. Complete blindness of left eye four years ago, followed by partial recovery; impotence for three years; difficulty of walking for two years. Expression of face fixed; tremors of head, arms, legs, and tongue; vision indistinct in left eye; no vertigo; slight nystagmus; speech slow and hesitating; patellar reflex exaggerated; early atrophy of optic discs. Discharged relieved on the seventeenth day.

Male, æt. 21. Difficulty in walking; dimness of sight and defect of speech for five months. Slight tremors of head, hands, and tongue; slight anæsthesia and rigidity of legs; no nystagmus; vision indistinct; no change observed by ophthalmoscope; speech slow. On two occasions there was sore throat lasting each time for a few days; the temperature was elevated, the tonsils enlarged, and the fauces congested. Discharged relieved on the sixtieth day.

Male, æt. 48. Severe fall on back one year ago. Tremors of arms and legs; reflex patellar action about normal; memory defective; speech not affected; vision imperfect; some colour-blindness; discs are pale. It was considered probable that the eye-symptoms might be caused by excessive use of tobacco. Discharged relieved on the fifty-fourth day.

Male, æt. 21. Defect in articulation noticed three years ago, since then has lost power in arms and legs, has become childish, and sometimes violent; has had two epileptiform attacks. Patient fatuous, but understands a few simple questions; articulation very imperfect; marked tremors of limbs, head and neck, tongue and lips. Evacuations passed in bed. Patient was very excitable and at times violent; on one occasion he had a rigor, the temperature rising to 102·8°. Discharged unrelieved on the fifty-first day.

Male, æt. 25. Defect in walking for ten months; trembling of head for four months. Expression dull; general tremors of the body on exertion; no nystagmus, sight not impaired; occasional vertigo; sore throat and ulceration of tonsils; patellar reflex exaggerated; speech not affected. The patient was readmitted after being discharged slightly relieved. The tremors were more marked, there was paresis of both legs; articulation was slow, and a tendency to scan words and syllables was observed; vision was normal, but there was occasional nystagmus; attacks of vertigo were more frequent; intellect unimpaired. Discharged relieved on the two hundred and fifteenth day.

Male, æt. 3. Expression stupid; tremors of head, arms and legs, on exertion; no paresis; speech not affected; intellect unimpaired. Discharged at own request on the eighth day.

Female, æt. 13. Legs and arms became weak and tremulous two years ago; pain in the back and incontinence of urine for one year; strabismus for six months. Has been somnambulistic since the present illness came on. Tremors of head, arms, legs, lips and tongue; patellar reflex markedly exaggerated; no paresis; occasional rigidity of legs; articulation slow and deliberate; no loss of memory; tendency to be emotional, and at times hysterical; vertigo noticed at times when walking; convergent strabismus probably due to hypermetropia,

slight nystagmus, occasional diplopia; urine passed involuntarily and with pain excoriation of vulva and inner side of thighs, enlarged clitoris, bladder natural; sore throat on one occasion. Discharged unrelieved on the hundred and second day.

Female, æt. 37. Vertigo for two years, weakness of legs for one year. Tremors of head, arms and legs; nystagmus; muscular power of extremities impaired; no rigidity; constant vertigo; occasional headache; temp. was elevated slightly for about a week; sore throat was complained of, and on inspection the fauces were found to be congested. Discharged relieved on the sixty-ninth day.

XXV.—ADULT SPINAL PARALYSIS.

Male, æt. 22. Nine months ago, after a feverish attack, lasting a few hours, patient had general tenderness, shortly followed by loss of power in the left leg and slightly in the right.

Condition on admission.—Muscles of left leg much atrophied; flexors of foot on leg almost powerless; patient can flex thigh, but with less force than on right side, and can also flex leg on thigh; no anæsthesia; reflex action nearly absent; no paresis or atrophy of any other muscles.

There was considerable pain and tenderness in both calves and in the knee and buttock on the left side. The temp. was much diminished in the left leg as compared with the right. The muscles responded badly to the interrupted current, and pain was caused by its use; very little contraction was noticed with the continuous current.

Discharged much relieved on the hundred and fourth day.

XXVI.—GLOSSY SKIN.

Female, æt. 35. Acute rheumatism one year ago, followed by jaundice; rheumatic pains in knees, back, and hands for one month.

Condition on admission.—Has muscular pains in the arms; cannot flex fingers and thumb of right hand; cannot separate fingers so well as those of the left; fore and middle finger of right hand extended, and can only be flexed slightly; ring and little fingers also extended, but are more readily flexed; slight anæsthesia of fore and middle fingers; the fingers and thumb, and more especially the two distal joints of each finger and the distal joint of the thumb are wasted, smooth, shiny, and the nails are longer and more filbert-shaped than those of the left hand. There was also wasting of the muscles of the right forearm, especially on the outer side, and flattening of the thenar and hypothenar eminences. All the muscles of the arm, forearm, and hand may be made to act by using twenty-five cells; the muscles on the ulnar side of forearm act more readily than those on outer side.

The continuous current was used daily with great benefit. A week after admission there was a marked improvement in the power of the right hand, the skin on the back of the hand was much less tense, and the wrinkles had reappeared over the joints. Discharged much relieved on the fortieth day.

XXVII.—BELLADONNA POISONING.

Female, æt. 12. Swallowed some liniment containing belladonna about six hours before admission.

Face flushed, expression wild, pupils much dilated, eyes bright and staring, tongue dry; constantly talking and catching at imaginary objects; does not recognise her friends, and mistakes the identity of the bystanders; pulse 108, regular, but weak. Zinci Sulph. gr. xx was given her at once, and caused free vomiting. The patient was convalescent next day, and remembered most of what she had said in her delirium; pupils remained dilated for two days; there was no dryness of the throat. Discharged cured on the second day.

Female, æt. 20. Was admitted for chorea (q. v.). Patient's mental condition was much impaired, and a suicidal tendency was manifest. On the sixty-third day after admission she was found with an empty bottle labelled "poison," which had previously contained ʒvij of a solution consisting of Morph. Acet. gr. ¼, and Atrop. Sulph. gr. $\frac{1}{60}$ in ♏x. She was apparently well for two hours and a half, but was shortly afterwards observed to totter when walking. She soon went to sleep, and in four hours after the solution was taken was noticed to be apparently sleeping quietly; the pulse was regular and of good strength; pupils dilated; skin cold; respiration rapid and feeble; half-an-hour subsequently the lips were blue, the hands, feet, and face cold; respiration had apparently ceased; the pupils were widely dilated, the conjunctivæ insensible; pulse 120, regular, and of fair strength.

Artificial respiration was at once performed, mustard was applied to the calves and warmth to the other parts of the body; a stimulating enema was also administered. After artificial respiration had been continued for fifteen hours patient opened her eyes, struggled, and asked to be left alone. The treatment was kept up altogether for twenty-six hours; artificial respiration was occasionally interrupted, but no spontaneous effort at breathing was observed for twenty-four hours; respiration was then so feeble that it was thought advisable to resume treatment.

The patient throughout was comatose, but was easily aroused by shaking, and occasionally would swallow fluids; the pupils were widely dilated. The mental condition was more unsatisfactory than before. The patient subsequently acknowledged to taking the poison, but said she poured some away.

XXVIII.—CHLORAL POISONING.

Male, æt. 45 (?). Swallowed a quantity of syrup of chloral, containing about 120 grains of hydrate of chloral, some hours before admission. The exact time when the poison was taken could not be ascertained.

Condition on admission.—Semi-comatose, face flushed, conjunctivæ insensible, respiration laboured, pupils contracted, extremities blue and very cold, occasionally moves his hands, but otherwise shows no signs of consciousness; temp. 98·6°, pulse 108. The contents of the stomach were of a light yellow colour. In a few hours the pulse became much stronger, and the apex beat of the heart was readily felt (previously it was scarcely perceptible).

The day after admission it is noted that the patient is drowsy, but answers rationally; does not commit himself to any statement; pupils sluggish, but act well after excitement; pulse 128; respirations 32, not stertorous; breath smells sweet; the urine, which was at first passed unconsciously, is now voided involuntarily. Convalescence was delayed by the formation of a carbuncle on the right buttock. Discharged cured on the thirteenth day.

XXIX.—CHRONIC MERCURIAL POISONING.

Male, æt. 32, glass-silverer. Eleven years ago, after he had been at his present occupation three years, had diarrhœa, occasional vomiting, and headache, with constant tremblings of head and arms; at the same time was salivated, and his gums were sore. He continued at his occupation with gradually increasing intervals of rest for seven years; then was under treatment in this hospital, and was discharged much relieved. Since that time, although not working at his old trade, the tremblings and abdominal pains have become more severe.

Condition on admission.—Great weakness; constant tremors of head and arms, aggravated by movement; legs not affected when at rest; gait hesitating and very feeble; no nystagmus, no tremors of tongue; pain in epigastric and umbilical region worse at intervals, and preventing sleep; gums swollen and spongy; teeth brittle; nausea, but no vomiting; slight salivation. Discharged relieved on the twenty-first day.

SURGICAL REPORT.

SURGICAL REPORT.

1879.

By HENRY PERCY POTTER, F.R.C.S.

General Statement.

Number of surgical beds			241
„ of patients in hospital January 1st, 1879 .	209	Males	105
		Females	104
„ „ admitted during the year 1879 .	2058	Males	1028
		Females	898
Total	2267		
„ „ in hospital December 31st, 1879 .	208	Males	112
		Females	96
„ „ treated to a termination during the year 1879 .	2059		

	Total.		Males.		Females.
Discharged cured . . .	1391	...	772	...	619
„ relieved . . .	477	...	252	...	225
„ unrelieved . .	59	...	22	...	37
Died	132	...	80	...	52
	2059	...	1126	...	933

Average number of deaths 6·4 per cent.
„ „ days in hospital 40.

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts. 6–12	Chronic	Not re-
GENERAL DISEASES.																		
Erysipelas (arising)	23	18	4	4	8	5	9	6	3	2	...	...	...	...	...	...	...	.
Ditto (admitted as such)	17	10	1	...	3	4	3	11	3	2	15	5	4	...	...	...	...	
Pyæmia (arising)	3	3	1	1	1	...	3	...	...	...	...	...	...	...	...	...	...	.
Ditto (admitted as such)	...	1	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	.
Syphilis—																		
1. Primary, by—																		
a. Indurated sore	1	14	...	1	9	5	...	...	...	...	...	...	9	5	1	...	...	.
2. Secondary, by—																		
a. Condylomata	...	47	...	1	23	5	18	...	...	...	2	8	8	15	6	7	...	
b. Eruptions	...	37	...	...	24	11	2	...	...	...	7	13	10	2	2	3	...	.
c. Iritis	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	.
d. Ulceration of genitals	...	5	...	...	4	1	...	...	...	...	...	1	1	3	...	...	...	.
e. Ulceration of tongue	...	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	.
3. Tertiary by—																		
a. Ulceration	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	.
LOCAL DISEASES.																		
TUMOURS.																		
Carcinomata—																		
Scirrhus of—																		
a. Breast	...	18	...	...	...	3	4	7	3	1	...	...	...	2	2	5	4	
b. Ditto (recurrent)	...	5	...	...	...	...	2	2	1	...	...	...	...	...	1	2	2	
c. Face	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	
d. Glands (axillary)	...	2	...	...	...	...	...	1	1	...	...	...	...	...	1	...	1	
e. Rectum	...	2	...	...	...	...	...	1	1	...	...	...	...	...	...	...	2	
Encephaloid of—																		
a. Uterus	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	
b. Testis	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	
Epithelioma of—																		
a. Tongue	7	2	...	...	...	...	3	3	1	2	...	...	...	2	2	2	1	
b. Lip	4	...	...	...	...	...	...	...	2	2	...	...	...	2	...	...	...	
c. Nose	1	1	...	...	...	...	...	...	1	1	...	...	...	...	1	...	...	
d. Genitals	3	3	...	...	...	...	...	...	4	2	...	...	...	...	3	2	1	
e. Anus	1	1	...	...	...	...	1	...	1	...	...	...	...	...	1	...	...	
f. Of scar following burn	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	
Sarcomata—																		
1. Spindle-celled.																		
a. Lower jaw	...	2	...	1	...	...	...	..	1	...	...	...	...	...	1	1	...	
b. Palate	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	
c. Scapula	1	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	
d. Humerus	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	
e. Hip	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	
f. Ilium	1	1	...	...	2	...	...	...	...	...	...	...	...	...	2	...	...	
g. Thigh	1	1	...	...	1	...	...	1	...	...	...	...	...	1	1	...	...	

Classes, according to authorised Nomenclature.

Duration of residence.									Result.				Remarks.
Dys. 1–4	Dys. 5–12	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
2	22	12	3	2	...	...	...	...	35	5	...	1	
1	9	4	1	11	1	...	...	...	23	1	...	3	1 of vaccino-erysipelas, 1 died from Bright's disease, 1 from pericarditis, 1 from sloughing after burn.
1	...	3	...	2	...	...	...	...	...	...	...	6	*Vide* Special Table—Pyæmia.
1	...	...	...	...	...	...	...	...	...	...	...	1	Acute necrosis of humerus, excision of shoulder
...	1	7	7	...	...	...	...	...	14	1	...	...	2 with eruption, 1 with warts.
...	8	11	14	5	4	3	2	...	42	5	...	...	1 developed pleurisy, 1 with fissure of anus.
...	7	11	9	6	4	...	...	...	34	3	...	...	2 with fistula in ano, which were divided.
...	...	...	...	1	...	...	...	...	1	...	...	...	With secondary eruption.
...	...	3	1	1	...	...	...	...	4	1	...	...	1 ? phagedænic.
...	...	1	...	...	...	...	...	...	...	1	...	...	
...	...	...	...	...	...	...	1	...	1	...	...	...	
...	1	...	4	4	7	2	...	...	11	2	1	4	1 died from internal deposit, 1 acute septicæmia, 1 exhaustion, 1 tuberculosis.
...	...	...	4	1	...	...	...	...	4	1	...	...	
...	...	1	...	...	...	...	...	...	...	...	1	...	Unsuitable for operation.
...	...	2	...	...	...	...	...	...	1	1	...	...	1 removal, 1 electrolysis.
...	...	2	...	...	...	...	...	...	...	2	...	...	
...	...	...	...	1	...	...	...	...	...	1	...	...	With large iliac abscess.
...	1	...	...	...	...	...	...	...	...	...	...	1	Died from internal deposit.
...	4	4	1	...	...	...	...	...	4	...	4	1	Death due to glandular infiltration of neck.
...	...	3	1	...	...	...	...	...	3	1	...	...	1 recurrent.
...	1	1	...	...	...	...	...	...	2	...	...	...	1 also of neck.
...	1	3	1	1	...	...	...	...	3	2	1	...	2 of vagina, 2 vulva, 1 penis, 1 scrotum.
...	..	2	...	...	...	...	...	...	...	1	1	...	1 recurrent.
1	...	...	...	...	...	...	...	...	...	...	1	...	Refused operation.
1	...	1	...	...	...	...	...	...	2	...	...	...	Removal in both.
...	...	1	...	...	...	...	...	...	1	...	...	...	Encapsuled.
..	...	...	1	...	...	...	...	...	1	...	...	...	Situated over scapula.
...	...	...	...	1	...	...	...	...	...	...	...	1	Died from secondary deposit.
...	...	...	1	...	...	...	...	...	1	...	...	...	
...	...	1	...	1	...	...	...	...	...	...	2	...	Unsuitable for operation.
...	...	2	...	...	...	...	...	...	...	...	1	1	Death, septicæmia.

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts. 6–12	Chronic	Not reported.
LOCAL DISEASES—*continued.*																		
TUMOURS.																		
Sarcomata—																		
2. Round-celled.																		
a. Ethmoid	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
b. Parotid	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
c. Groin	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
d. Lower extremity	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...
3. Myeloid.																		
a. Upper jaw	2	1	...	...	...	...	...	2	...	1	...	...	1	2	...	...	...	...
b. Lower jaw	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...
c. Femur	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...
4. Cystic.																		
a. Breast	...	2	...	...	...	...	...	1	1	...	...	...	...	...	...	1	1	...
Adenoma—																		
Breast	...	6	...	...	1	3	1	...	1	...	...	...	...	1	3	1	...	1
Myxoma	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...
Enchondroma	2	1	...	...	1	2	...	...	...	...	...	...	...	...	...	...	3	...
Lipoma	3	6	...	...	...	1	2	4	2	...	...	...	...	...	1	1	7	...
Papilloma	3	5	...	...	2	1	1	1	2	1	...	...	...	3	1	1	3	...
Fibroma	1	4	1	...	1	2	1	...	...	...	...	...	...	1	...	3	1	...
Angioma	...	2	...	...	1	1	...	...	...	...	...	...	...	...	...	...	1	1
Exostosis	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Nævus vascularis	2	5	6	...	...	1	...	...	...	...	...	...	...	...	...	...	7	...
Polypus	2	...	...	...	...	1	...	...	1	...	...	...	...	...	...	1	...	1
Rodent ulcer	3	3	...	...	...	...	2	1	2	1	...	...	...	...	1	1	4	...
Lupus	...	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	2	...
Keloid	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
Cystic—																		
a. Ovarian	...	22	...	...	2	8	1	5	6	...	16	...	...	...	1	4	1	...
b. Sebaceous	2	3	...	...	2	2	1	...	...	...	...	...	...	...	2	...	3	...
c. Dermoid	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
d. Other cysts	4	4	1	...	...	5	...	...	2	...	...	...	1	...	1	...	6	...
NERVOUS SYSTEM.																		
Tetanus (arising)	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ditto (admitted as such)	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...
CIRCULATORY SYSTEM.																		
Aneurism	3	1	...	...	...	...	2	1	1	...	...	...	...	1	3	...	...	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
...	...	1	...	...	...	...	...	...	...	...	...	1	Meningitis.
...	...	1	...	...	...	...	...	...	1	...	...	...	Recurrent.
...	...	...	1	...	...	...	...	...	1	...	...	...	Removal.
...	...	1	...	...	...	...	...	...	...	...	1	...	Refused operation.
...	...	3	...	...	...	...	...	...	1	...	1	1	Death due to cervical glandular, infiltration.
...	...	...	1	...	...	...	...	...	1	...	...	...	
...	...	...	...	1	...	...	...	...	1	...	...	...	Amputation at hip-joint.
...	...	...	...	2	...	...	...	...	2	...	...	...	Amputation of mamma.
...	1	3	1	...	1	...	...	...	5	1	...	...	1 of both mammæ, removal in 5; average age 30.
...	...	...	1	...	...	...	...	...	1	...	...	...	Finger, gelatinous, amputation.
...	...	2	1	...	...	...	...	...	3	...	...	...	2 of parotid, 1 of toe; all removed.
...	...	4	4	...	1	...	...	...	9	..	...	...	All removed; 1 each of pharynx, neck, shoulder, forearm, back, abdomen, 3 of thigh.
...	2	3	2	1	...	...	...	..	5	2	...	1	Fatal case, stricture of rectum; of mamma, finger, anus, and rectum.
...	1	2	2	...	...	...	...	...	4	1	...	...	2 epulis, 1 painful subcutaneous tumour, 1 specific of mamma, 1 of palate.
...	1	1	...	...	...	...	...	...	2	...	...	...	1 vascular of meatus, 1 pulsating tumour of ear.
...	...	...	...	1	...	...	...	...	1	...	...	...	Of femur, removed.
2	2	1	1	...	1	...	...	...	3	2	2	...	6 chiefly of shoulder, 1 of face, and 1 of lip.
1	...	...	1	...	...	...	...	...	...	2	...	...	1 post-pharyngeal, 1 tracheal.
...	...	3	3	...	...	...	...	...	5	1	...	...	1 recurrent, 2 removed, 4 near canthus, 1 of forehead, 1 in connection with nostril.
...	...	...	1	1	...	...	...	...	1	1	...	...	Same patient; of ala and septum of nose.
...	...	1	...	...	...	...	...	...	1	...	...	...	Of pinna, recurrent, removal.
1	6	6	6	3	...	...	...	...	8	3	4	7	Operation of ovariotomy in 9, of whom 5 died; paracentesis in 7, of whom 1 died.
1	2	2	...	...	...	...	...	...	5	...	...	...	All removed; 1 case of glandular tumour of scalp, ? sebaceous; 1 of neck, 1 of face.
...	..	1	...	...	...	...	...	...	1	...	...	...	Removed; of scalp containing hair.
...	3	4	1	...	...	...	...	...	5	3	...	...	Of leg (recurrent), neck (congenital), jaw (alveolar), anus, foot (ganglionic), labium, and thyroid.
...	1	...	...	...	...	...	...	...	...	...	...	1	On 9th day after scalp wound.
1	...	...	...	...	...	...	...	...	...	...	...	1	Depresssed fracture of skull.
...	...	1	1	2	...	...	...	...	3	...	1	...	2 ligature, 1 compression.

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.							Duration before admission.						
	M.	F.	Under 5	5–10	10–20	20–30	30–40	40–50	50–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts. 6–12	Chronic	Not re-
CIRCULATORY SYSTEM—*continued.*																		
Varicose veins	2	1	...	...	...	2	...	1	...	...	...	...	...	...	...	...	3	
Phlebitis	2	4	...	...	...	2	1	2	1	...	1	1	2	...	2	...	...	
Gangrene	1	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	1	
Phlegmasia dolens	...	2	...	...	...	1	1	...	...	...	...	...	...	1	1	...	...	
Hæmorrhage	4	2	2	...	...	2	1	1	1	...	6	...	...	...	...	...	...	
Epistaxis	3	...	...	...	...	1	...	1	1	...	3	...	...	...	...	...	...	
GLANDULAR SYSTEM.																		
Glandular abscess	2	6	...	2	2	2	...	1	...	1	...	...	4	1	...	2	...	
Adenitis	12	...	3	4	2	2	...	1	...	...	5	6	...	1	...	...	...	
Angeioleucitis	1	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	
Mammary abscess	...	4	...	...	...	3	...	1	...	...	...	...	1	2	1	...	...	
Enlarged tonsils	1	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	1	
RESPIRATORY SYSTEM.																		
Œdema of glottis	2	...	1	...	...	1	...	...	...	...	1	1	...	...	...	...	...	
Laryngitis	3	2	3	1	...	...	...	...	1	...	4	...	...	...	...	...	1	
Ærial fistula	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	
Obstruction of nasal duct	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	
Old case of tracheotomy	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	
DIGESTIVE SYSTEM.																		
Intestine—																		
Strangulated hernia—																		
a. Inguinal	19	1	1	...	1	8	...	2	5	3	19	1	...	...	..	...	...	
b. Femoral	6	10	...	...	...	2	1	1	5	7	14	1	...	...	...	...	1	
c. Umbilical	1	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	
Herniæ—																		
Inguinal, uncomplicated	1	...	...	...	..	...	...	...	1	...	...	...	...	1	...	...	...	
„ obstructed	1	...	...	...	..	...	...	...	1	...	1	...	...	...	...	...	...	
„ irreducible	1	...	...	1	...	...	...	...	...	...	...	...	1	...	..	...	...	
Femoral omental	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	
Fistula in ano	14	6	...	1	1	5	6	4	1	2	2	4	1	1	1	2	8	
Hæmorrhoids	10	5	...	...	...	5	5	3	2	...	...	...	11	2	1	...	...	
Prolapsus ani	2	1	3	...	...	...	...	...	...	...	1	1	...	1	...	...	...	
Stricture of rectum	1	9	...	...	1	6	2	1	..	...	...	...	3	1	...	2	4	

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R	U.	D.	
...	...	1	2	...	...	...	...	...	3	...	...	...	1 pins inserted, 1 excision of veins, 1 elastic bandage.
1	2	2	1	...	...	...	...	...	5	...	...	1	Fatal case—embolism in right pulmonary artery; 2 with varicose veins, 1 thrombosis of internal saphenous.
...	...	...	2	...	...	...	...	...	1	1	...	...	Of toes.
...	1	...	...	1	...	...	...	...	1	...	1	...	Left lower extremity.
2	4	...	...	...	...	...	...	...	6	...	...	...	2 from varicose vein, 1 each from leech-bite, wound of tongue, abscess of neck, after circumcision.
1	2	...	...	...	...	...	...	...	3	...	...	...	3 plugging of nares
1	3	3	1	...	...	...	...	...	3	4	1	...	7 of neck, 1 of axilla.
2	5	4	1	...	...	...	...	...	12	...	...	...	5 inguinal, 6 popliteal, 1 cervical.
...	...	...	1	...	...	...	...	...	...	1	...	...	With obstructive lymphatic inflammation of lower limbs.
...	1	2	1	...	...	...	...	...	4	...	...	..	All during lactation.
1	...	1	...	...	...	...	...	...	1	1	...	...	In both excision.
...	2	...	...	...	...	...	...	...	2	...	...	...	1 catarrhal, 1 scald.
1	1	1	2	...	...	...	...	...	2	1	...	2	2 croup, 2 diphtheria, 1 chronic tubercular.
...	...	...	1	...	...	...	...	...	...	1	...	...	Following self-inflicted wound of neck.
...	1	...	...	...	...	...	...	...	...	1	...	...	After operation for rodent ulcer.
...	...	1	...	...	...	...	...	...	1	...	...	...	Admitted for removal of tube.
7	6	5	1	...	...	...	1	...	18	...	...	2	Fatal cases: obstruction of large intestine; acute peritonitis.
1	3	3	9	...	...	...	...	...	12	1	...	3	1 died of gangrene of gut, 1 uræmia, 1 large pelvic abscess.
1	...	...	...	...	...	...	...	...	...	...	...	1	Peritonitis.
...	1	...	...	...	...	...	...	...	1	...	...	...	Admitted for truss.
...	...	1	...	...	...	...	...	...	...	1	...	...	
...	1	...	...	...	...	...	...	...	1	...	...	...	Truss ordered.
1	...	...	...	...	...	...	...	...	1	...	...	...	
1	7	8	4	...	...	...	...	...	19	1	...	...	All had fistula divided.
..	3	10	2	...	...	...	...	...	12	3	...	...	In 1 erysipelas occurred after operation.
1	2	...	...	...	...	...	...	...	2	...	...	1	Fatal case one of starvation.
1	2	3	1	1	...	1	1	...	2	7	1	...	7 syphilitic, 3 inflammatory.

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.						
	M.	F.	Under 5	5–10	10–20	20–30	30–40	40–50	50–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts. 6–12	Chronic	Not re-
DIGESTIVE SYSTEM — *continued.*																		
Ulcer and fissure of rectum	3	4	...	...	...	3	4	...	...	...	...	...	1	1	2	1	...	
Disease of mouth	1	2	...	...	1	1	...	...	1	...	...	1	...	1	...	...	1	
Old lumbar colotomy	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	
Intestinal obstruction	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	
GENITO-URINARY SYSTEM.																		
Testicle—																		
Orchitis, chronic	4	...	...	...	...	2	1	...	1	...	...	...	...	...	1	...	3	
Epididymis—																		
Epididymitis	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	
Scrotum, &c.—																		
Hydrocele	8	...	...	...	...	3	2	1	2	...	...	...	..	2	1	4	1	
Varicocele	2	...	...	...	2	...	...	...	...	...	...	...	...	1	...	...	1	
Sloughing of	1	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	
Recto-vaginal fistula	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	
Vesico-vaginal fistula	...	1	...	...	...	...	...	1	...	...	...	..	...	...	...	...	...	
Rupture of perineum	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	
Ulcer of genitals	4	1	...	...	2	3	...	...	...	...	1	2	...	1	...	1	...	
Vaginitis	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	
Warts	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	
Paraphimosis	4	...	...	...	2	1	1	...	...	...	...	3	...	...	...	...	...	
Bladder—																		
Hysterical affection of	...	2	...	...	2	...	...	...	...	...	1	...	...	...	...	...	1	
Recto-vesical fistula	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	
Cystitis	11	...	1	...	1	4	1	...	1	3	1	...	...	2	3	...	3	
Hæmaturia	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	
Calculus in ureter	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	
Calculus	7	1	2	5	1	...	...	...	...	...	...	...	...	...	1	1	5	
Urethra—																		
Calculus	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	
Stricture	35	1	...	...	...	13	6	10	5	2	...	1	1	2	2	3	27	
Extravasation of urine	7	...	...	...	...	...	2	3	2	...	4	3	...	...	...	...	...	
Retention „	8	1	...	...	1	2	2	2	1	1	9	...	...	...	...	...	...	
Urinary fistula	3	...	...	...	...	1	1	...	...	1	...	...	...	1	1	...	1	
Perineal abscess	2	...	...	...	...	...	1	1	...	...	1	...	1	...	...	...	...	
Prostate—																		
Enlargement, chronic	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	
OTHER AFFECTIONS OF GENERATIVE ORGANS.																		
Gonorrhœa	...	51	...	...	38	12	1	...	...	...	5	9	10	7	12	5	3	

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
ys. –4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
..	1	5	1	...	...	...	...	...	7	...	...	...	1 rectal sinus, 2 complicated with hæmorrhoids.
..	1	...	2	...	...	...	...	...	1	2	...	...	1 syphilitic tongue, 1 strumous lip, 1 syphilitic aperture of palate.
..	1	...	...	...	...	...	...	...	...	1	...	...	Support required. Operation performed for syphilitic stricture of rectum.
1	...	...	...	...	...	...	...	...	...	...	...	1	Band constricting small intestine.
...	...	2	2	...	...	...	...	...	3	1	...	...	3 syphilitic, 1 tubercular.
...	1	...	...	...	...	...	...	...	1	...	...	...	With orchitis.
2	3	2	1	...	...	...	...	...	4	4	...	...	5 radical cure, 1 encysted.
...	...	1	1	...	...	...	...	...	2	...	...	...	Pins and sutures.
...	...	1	...	...	...	...	...	...	1	...	...	...	Transferred to medical ward for rheumatism.
...	...	...	...	1	...	...	...	...	1	...	...	...	Operated upon twice.
...	...	1	...	...	...	...	...	...	...	1	...	...	Refused operation.
...	...	...	...	1	...	...	...	...	1	...	...	...	Cured by operation.
...	2	2	...	1	...	...	...	...	5	...	...	...	All probably venereal, 3 phagedænic.
...	...	1	...	...	...	...	...	...	1	...	...	...	No history of gonorrhœa.
...	...	...	1	...	...	...	...	...	1	...	...	...	
...	2	2	...	...	...	...	...	...	4	...	...	...	2 inflammatory, 1 with chancre, 1 with gonorrhœa.
...	2	...	...	...	...	...	...	...	2	...	...	...	1 retention, 1 incontinence.
...	1	...	...	...	...	...	...	...	...	...	...	1	Puncture above pubes for retention; disease of kidneys.
...	2	3	5	...	1	...	...	...	2	7	...	2	In 1 cystotomy performed; fatal cases, uræmia.
...	1	...	...	...	...	...	...	...	...	1	...	...	? vesical growth.
...	1	...	...	...	...	...	...	...	...	1	...	...	
1	...	2	...	2	3	...	...	...	5	1	1	1	6 operated upon (lateral lithotomy).
...	...	1	...	...	...	...	...	...	1	...	...	...	Removed by incision behind scrotum.
6	7	15	3	5	...	...	...	...	18	16	1	1	1 died of bronchitis, cystitis, and pericystitis.
2	1	4	...	...	...	...	...	...	3	1	...	3	Perineal section in all.
2	3	3	1	...	...	...	...	...	5	2	...	2	1 tapped above pubes, the rest catheterism.
...	...	2	...	...	1	...	...	...	3	...	...	...	Continuous dilatation, all perineal.
...	...	1	1	...	...	...	...	...	1	1	...	...	Gradual dilatation, incision.
...	...	1	...	...	...	...	...	...	...	1	...	...	Catheterism.
3	11	19	8	8	2	...	...	...	44	5	2	...	

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.							Duration before admission.						
	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts. 6–12	Chronic
OTHER AFFECTIONS OF GENERATIVE ORGANS—*continued.*																	
Soft sore	1	30	...	...	20	9	2	...	...	...	3	5	15	5	3	...	...
Warts	...	21	...	...	15	6	...	...	...	...	1	...	4	2	3	2	5
Labial abscess	...	6	...	...	5	1	...	...	...	...	1	...	4	...	...	...	...
Bubo	...	6	...	...	5	...	1	...	...	...	...	2	2	...	...	...	..
Vulval œdema	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
DISEASES OF LOCOMOTORY SYSTEM.																	
Bones—																	
Periostitis of—																	
a. Femur, acute	5	1	...	3	1	1	...	1	...	...	...	1	1	4	...	...	...
b. Tibia, acute	1	1	...	...	2	...	...	...	...	...	...	1	1	...	...	...	...
,, chronic	1	2	...	2	1	...	...	...	...	...	...	...	2	...	...	...	1
c. Humerus, acute	2	1	2	...	...	1	...	...	...	...	...	3	...	...	...	...	...
d. Tarsus	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...
Rachitis of legs	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Necrosis of—																	
a. Skull	1	1	...	...	...	...	1	1	...	...	...	...	...	...	1	...	1
b. Superior maxilla	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...
c. Inferior maxilla	5	3	1	4	2	1	...	...	...	...	...	...	...	...	2	1	5
d. Scapula	...	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...
e. Clavicle	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
f. Humerus	2	4	...	1	3	2	...	...	...	...	...	...	2	...	...	...	4
g. Radius	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
h. Phalanges	...	2	...	...	...	...	1	...	1	...	...	...	...	...	2	...	...
j. Ilium	2	1	...	...	1	2	...	...	...	...	...	...	1	...	...	...	2
k. Femur	15	6	3	4	6	2	4	1	...	1	...	...	...	3	4	2	12
l. Tibia	11	7	...	2	11	2	1	2	...	...	...	1	...	1	1	2	13
m. Fibula	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...
n. Multiple	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Caries of—																	
Temporal bone	1	2	...	...	2	...	...	1	...	...	...	...	...	...	...	...	3
Coccyx	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Tibia	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
Tarsus	9	4	2	...	6	2	2	1	...	...	...	...	...	1	3	...	9

Classes, according to authorised Nomenclature—continued.

Duration of residence.								Result.				Remarks.
rs. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
1	3	9	15	2	1	...	...	...	24	7	...	...	
1	3	7	7	2	1	...	...	...	19	2	...	...	Most complicated with vaginal discharge.
1	...	2	3	...	...	...	...	...	5	1	...	...	
...	1	5	...	...	...	...	...	...	6	...	...	...	
1	...	...	...	...	...	...	...	...	...	...	1	...	Refused to remain.
...	1	1	2	...	...	2	...	...	3	2	...	1	1 died from exhaustion following large iliac abscess, 1 erysipelas.
...	...	1	...	...	...	1	...	...	1	1	...	...	1 erysipelas, 1 followed by necrosis.
...	1	...	1	...	1	...	...	...	1	2	...	...	2 with ostitis.
...	2	...	...	1	...	...	...	...	1	2	...	...	1 resulting in necrosis of shaft.
...	...	1	...	...	...	...	...	...	1	...	...	...	After rheumatic fever.
...	...	...	1	...	...	...	...	...	...	1	...	...	Genu varum.
...	2	...	...	...	...	...	...	...	...	2	...	...	1 followed old injury, 1 rodent ulcer.
...	...	1	...	...	...	...	...	...	...	1	...	...	? syphilitic, exfoliation from nostril
...	1	2	4	1	...	...	...	...	2	6	...	...	In 2 removal of dead bone, 3 following measles, 2 injury, 1 due to carious teeth.
...	...	...	1	...	...	...	...	...	1	...	...	...	After injury; large inflammatory abscess.
...	...	1	...	...	...	...	...	...	1	...	...	...	Syphilitic.
...	1	2	2	...	1	...	...	...	3	3	...	...	1 acute, 1 peripheral, 1 syphilitic, 2 strumous, 1 traumatic.
...	...	...	1	...	...	...	...	...	...	1	...	...	After injury.
...	...	...	1	...	...	...	...	...	2	...	...	...	1 erysipelas after amputation, 1 following thecal abscess.
...	...	...	1	2	...	...	...	...	2	...	...	1	1 of chronic pyæmia, with recovery. Fatal case, pelvic cellulitis and cystitis.
1	5	6	8	1	...	...	...	...	10	10	...	1	Death: amputation, septicæmia; 3 followed by erysipelas.
2	1	2	3	6	1	3	...	...	11	6	1	...	In 14 sequestrotomy, 1 with disease of wrist, 1 amputation of thigh, 1 of leg; 2 erysipelas.
...	...	...	1	...	...	...	...	...	1	...	...	...	Also disease of wrist.
1	...	...	...	...	...	...	...	...	...	...	...	1	Scrofulosis, amyloid disease.
...	2	...	1	...	...	...	...	...	1	2	...	...	Of mastoid bone, 1 after measles, 1 after injury.
...	...	...	...	1	...	...	...	...	1	...	...	...	With abscess.
...	...	...	...	1	...	...	...	...	1	...	...	...	Syphilitic.
...	1	1	3	5	1	2	...	...	9	4	...	...	2 had erysipelas, 1 with (?) intra-cranial tumour, 1 chorea.

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.							Duration before admission.						
	M.	F.	Under 5	5–10	10–20	20–30	30–40	40–50	50–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts. 6–12	Chronic
DISEASES OF LOCOMOTORY SYSTEM—*continued.*																	
Bones—																	
Caries of—																	
Metatarsus	4	...	1	1	...	1	...	...	...	1	...	...	...	...	...	...	4
Carpus	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Joints—																	
Temporo-maxillary	1	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	2
Shoulder (chronic)	2	5	...	...	2	2	1	1	1	...	...	...	...	1	3	1	2
Elbow—																	
a. Chronic synovial	8	8	3	3	3	4	1	...	1	1	...	1	...	4	3	...	7
b. Old excision readmitted	5	...	3	1	1	...	...	...	...	...	...	...	...	...	...	...	4
c. Gonorrhœal arthritis	...	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
d. Hysteria	...	1	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...
Wrist	5	2	...	...	2	2	2	1	...	...	...	...	...	...	3	1	2
Sacro-iliac	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...
Hip—																	
a. Incipient	13	10	8	8	5	1	...	1	...	...	...	1	1	5	12	4	...
b. Chronic	15	12	5	8	8	3	2	1	...	...	...	...	1	...	...	2	24
c. Old excision readmitted	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
d. Chronic osteo-arthritis	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...
e. Hysteria	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Knee—																	
a. Incipient	6	8	1	...	6	3	3	1	...	...	...	2	6	2	4	...	...
b. Chronic	32	23	14	6	23	3	9	...	...	...	...	...	...	...	3	6	46
c. Old excision readmitted	2	3	1	2	...	1	1	...	...	...	...	...	...	...	...	...	5
d. Chronic osteo-arthritis	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
e. Loose cartilage	4	1	...	...	4	1	...	...	...	...	...	...	...	1	1	1	2
Ankle—																	
a. Chronic	6	4	1	2	3	2	2	...	...	...	...	...	...	1	3	2	2
b. Gonorrhœal arthritis	2	...	...	...	...	1	1	...	...	...	1	...	...	...	1	...	...
Metatarsus—																	
a. Chronic	3	...	...	...	...	2	...	1	...	...	...	...	...	...	2	...	1
Spine—																	
Pott's curvature	6	8	7	1	3	2	1	...	...	...	...	...	...	1	2	2	8
Caries without curvature	6	5	1	...	3	2	...	3	2	...	...	1	1	...	2	...	5
Lateral curvature	...	2	...	...	1	1	...	...	...	...	...	...	...	...	1	...	1

Classes, according to authorised Nomenclature—continued.

Duration of residence.								Result.				Remarks.
Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
...	...	2	2	...	...	...	...	3	1	...	...	Chiefly involving metatarso-phalangeal joint.
...	1	...	...	...	...	...	...	...	1	...	...	
...	...	1	...	1	...	...	...	...	2	...	...	1 developed erysipelas, 1 synovial, 1 anchylosis.
1	1	1	2	...	1	...	...	2	5	...	...	1 caries, 1 subacute, 1 syphilitic, 1 anchylosis, 3 synovial.
3	7	3	3	...	...	...	...	11	4	...	1	Death: measles and broncho-pneumonia; 5 traumatic, 1 syphilitic, 1 had erysipelas.
1	1	1	...	...	1	...	...	1	4	...	...	2 resection, 1 with disease of knee.
...	...	...	...	1	...	...	...	1	...	...	...	
...	...	...	...	...	...	...	...	...	1	...	...	
1	2	1	3	...	...	...	...	3	4	...	...	Synovial disease and caries; 1 case developed erysipelas after operation.
...	...	...	1	...	...	...	...	...	1	...	...	
3	6	4	4	2	1	2	...	8	13	...	2	1 diphtheria, 1 tubercular meningitis.
3	4	4	6	3	3	3	1	3	18	1	5	Deaths: bronchitis, exhaustion, tubercular tumour of brain.
...	...	...	1	...	...	...	...	...	1	...	...	
1	...	...	...	...	...	...	...	...	1	...	...	
...	1	...	...	...	...	...	...	...	1	...	...	
4	4	5	1	...	...	...	...	6	7	...	1	
4	14	10	10	8	3	3	3	24	29	...	2	Deaths: septicæmia, tubercular meningitis.
...	2	2	1	...	...	...	...	2	3	...	...	
...	...	...	...	...	...	...	...	...	1	...	...	Hydrops articuli.
...	3	2	...	...	...	...	...	3	2	...	...	In 2 removal of body.
...	2	3	5	...	...	...	...	3	7	...	...	In 2 excision of joint.
1	1	...	...	...	...	...	...	2	...	...	...	
1	1	1	...	...	...	...	...	2	1	...	...	Of metatarso-phalangeal joint of great toe, 1 excised.
3	3	1	2	2	2	...	...	1	12	...	1	Death: tubercular meningitis; temp. 108·2° before death, 105·8° after.
1	4	4	2	...	...	...	...	4	5	...	2	Deaths: pelvic abscess, psoas abscesses with exhaustion. Sayer's jacket in 14.
...	2	...	...	...	...	...	...	...	2	...	...	

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.						
	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts. 6–12	Chronic
DEFORMITIES.																	
Talipes—																	
a. Equino-varus	2	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	2
b. Varus	4	3	3	3	...	1	...	...	...	...	...	...	...	...	...	...	6
c. Equinus	1	3	1	1	2	...	...	...	...	...	...	...	...	...	...	...	3
d. Valgus	5	6	4	1	5	1	...	...	...	...	...	...	...	1	1	2	5
e. Calcaneo-valgus	...	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...
Deformity of foot	2	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	2
„ face	2	...	...	1	1	...	...	...	...	...	...	...	...	...	...	1	...
„ thigh	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
„ hand	...	2	...	1	...	...	1	...	...	...	...	...	...	...	...	...	2
Torticollis	...	2	...	1	...	1	...	...	...	...	...	...	...	...	2	...	...
Ectropion	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Curved tibiæ	...	2	1	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Deformity following excision of knee	1	2	1	1	1	...	...	...	...	...	...	...	...	...	...	1	2
Infantile paralysis	1	2	...	...	1	2	...	...	...	...	...	...	...	...	...	...	3
Genu valgum	17	6	15	2	6	...	...	...	...	..	...	...	...	1	2	3	12
Genu varum	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Deformity of palate	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
MALFORMATIONS.																	
Cleft palate	2	6	1	1	4	2	...	...	...	...	...	...	...	...	...	...	8
Harelip, single	4	3	7	...	...	...	...	...	...	...	...	...	...	...	...	...	7
„ double	3	2	4	...	...	1	...	...	...	...	...	...	...	...	...	...	4
Meningocele	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Encephalocele	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Malformation of tongue	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1
„ arm	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Hypospadias	2	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	2
Imperforate hymen	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Phimosis	2	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	2
Extroversio vesicæ	3	...	...	2	1	...	...	...	...	...	...	...	...	...	...	...	3
APPENDAGES TO MUSCULAR SYSTEM.																	
Inflammation about insertion of pectoralis major	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...
Ganglion of hand	1	1	...	...	...	...	2	...	...	...	...	...	...	...	...	1	1
Tendinitis (acute)	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...
Bursa prepatellaris, enlarged	...	2	...	...	1	1	...	...	...	...	...	...	...	...	1	...	1
„ inflamed	1	2	...	...	1	2	...	...	...	...	...	2	1	...	...	...	...
„ suppurating	6	1	1	...	2	...	2	1	1	...	1	2	2	1	...	...	...
Bursæ over tuber ischii, enlarged	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
Bursa over trochanter major, suppurating	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
s. 4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
.	...	1	...	1	...	...	...	...	...	2	...	...	1 erysipelas twice after tenotomy.
1	1	2	1	1	...	1	...	...	3	4	...	...	6 congenital, 2 right, 2 left, 3 bilateral.
.	1	1	1	1	...	...	...	...	2	2	...	...	4 infantile paralysis, all unilateral.
.	3	2	4	1	1	...	...	...	5	5	1	...	2 congenital, 3 right, 3 left, 5 bilateral.
.	...	...	1	...	...	...	...	...	1	...	...	...	Division of extensor longus digitorum.
.	1	1	...	...	...	...	...	...	1	1	...	...	Following perforating ulcer.
.	...	...	1	...	...	...	1	...	1	...	1	...	Following cancrum oris; old plastic operation.
.	...	...	1	...	...	...	...	...	1	...	...	...	Following burn.
.	1	...	1	...	...	...	...	...	1	...	1	...	1 after injury, 1 caries of phalanx.
.	1	1	...	...	...	...	...	...	1	1	...	...	1 hysterical, 1 caries of teeth.
.	...	1	...	...	...	...	...	...	1	...	...	...	Due to strumous ulceration.
.	...	...	...	...	2	...	...	...	1	1	...	...	Rickets and genu valgum; wedge removed from both tibiæ in 1, single operation in 1.
.	...	...	...	3	...	...	...	...	3	...	...	...	2 osteotomy, 1 amputation of thigh.
1	2	...	...	...	...	...	...	...	...	1	2	...	Of left leg.
1	...	1	10	5	4	1	1	...	13	9	1	...	Subcutaneous section in 17, forcible straightening in 1.
.	...	...	...	1	...	...	...	...	1	...	...	...	Deformity of femurs; division.
.	...	1	...	...	...	...	...	...	...	...	1	...	Acquired aperture.
1	...	1	3	2	1	...	...	...	5	2	1	...	7 operated upon.
1	1	3	...	1	...	1	...	...	5	...	1	1	In fatal case congenital deformity of brain.
.	...	...	4	1	...	...	...	...	4	...	...	1	Death due to stomatitis.
.	1	...	...	...	...	...	...	...	...	...	1	...	Post-meningocele and encephalocele.
.	1	...	...	...	...	...	...	...	...	...	...	1	Asthenia.
.	1	...	...	...	...	...	...	...	...	...	1	...	Macroglossia.
.	...	1	...	...	...	...	...	...	1	...	...	...	Congenital rudimentary hand.
.	...	1	1	...	...	...	...	...	...	...	2	...	Unsuitable for operation.
.	...	...	1	...	...	...	...	...	1	...	...	...	Incision of hymen.
1	1	...	...	...	...	...	...	...	2	...	...	...	Circumcision.
.	...	...	...	...	...	...	1	2	1	2	...	...	Operation in all.
...	...	1	...	...	...	...	...	...	...	1	...	...	No assignable cause.
...	1	...	1	...	...	...	...	...	2	...	...	...	1 compound of wrist; both operated upon.
...	...	1	...	...	...	...	...	...	1	...	...	...	Amputation of finger.
...	...	2	...	...	...	...	...	...	2	...	...	...	Removed.
...	1	2	...	...	...	...	...	...	3	...	...	...	Incised.
...	2	4	1	...	...	...	...	...	6	1	...	...	All incised; 1 followed by erysipelas.
...	...	...	1	...	...	...	...	...	1	...	...	...	An enlarged bursa over each tuberosity and sacrum; removal.
...	...	...	...	...	...	1	...	...	1	...	...	...	Incision; troublesome deep sinus remaining.

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.					
	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Dys. 1–4	Dys 5–13	Wks 2–4	Mts. 1–2	Mts. 2–6	Mts. 6–12	Chronic
CELLULAR TISSUE.																	
Inflammation	2	...	...	...	...	1	...	1	...	...	1	...	1	...	...	...	...
Sinus	2	2	...	1	2	1	...	...	...	...	...	...	...	...	2	...	2
Abscess—																	
a. Neck	1	3	1	...	1	...	2	...	...	...	...	1	1	1	1	...	...
b. Scalp	1	1	...	...	1	...	1	...	...	...	...	...	1	...	...	...	...
c. Shoulder	...	1	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...
d. Thoracic walls	4	2	...	...	...	2	3	1	...	...	...	...	...	1	1	...	4
e. Abdominal walls	...	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...
f. About hip	2	...	1	1	...	...	...	...	...	...	...	...	...	1	1	...	...
g. About knee	4	...	1	...	1	1	1	...	...	...	...	...	2	1	1	...	...
h. Lumbar	1	1	...	...	...	1	...	...	...	1	...	...	1	...	...	1	...
j. Behind coccyx	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
k. Of thigh	1	2	1	...	1	...	1	...	...	...	...	...	...	2	1	...	...
l. Of leg	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...
m. Of arm	1	2	1	...	2	...	...	...	...	...	...	1	...	1	...	...	...
n. Ischio-rectal	5	...	...	...	...	1	...	...	3	1	...	...	3	1	...	...	1
o. Buttock	1	1	...	...	1	1	...	...	...	...	...	...	1	...	...	...	1
p. Perineal	1	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...
Cellulitis of—																	
a. Neck	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
b. Arm and hand	5	3	...	...	2	4	1	...	...	1	3	2	2	...	...	...	...
c. Pelvic	...	2	...	...	...	...	2	...	...	...	...	...	1	1	...	...	...
Gumma	3	1	...	...	1	2	1	...	...	...	...	1	...	...	1	1	1
Conical stump	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
CUTANEOUS SYSTEM.																	
Ulcer of—																	
a. Hands	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...
b. Groin	1	2	...	1	1	1	...	...	...	...	...	1	1	1	...	...	...
c. Thigh	1	2	...	...	1	1	...	...	...	1	...	...	...	...	1	1	1
d. Leg	16	14	...	1	4	8	10	3	3	1	...	3	1	5	1	2	18
e. Foot	3	2	1	...	1	1	...	2	...	...	...	...	...	2	...	1	2
f. About anus	...	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...
Eczema	2	3	...	...	1	1	1	1	1	...	...	...	...	3	1	...	1
Purpura	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Erythema	...	1	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...
Elephantiasis scroti	2	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	2
Noma vulvæ	...	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Œdema	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.								Result.				Remarks.
Hrs. 0–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
..	1	...	...	1	...	...	...	...	2	...	...	...	Of thigh, of abdominal parietes.
..	...	3	1	...	...	...	...	...	2	2	...	...	Of knee, of labium, of ankle.
1	2	...	1	...	...	...	...	...	2	...	...	2	Death: hæmorrhage from abscess, pleurisy.
..	...	...	2	...	...	...	...	...	2	...	...	...	Pott's puffy tumour; suppuration.
..	1	...	...	...	...	...	...	...	1	...	...	...	After removal of lipoma.
2	...	1	...	1	1	1	...	...	3	2	1	...	1 with ? empyema, 1 chronic, of chest, 1 submammary with axillary abscess, 1 over mamma and of groin, the latter possibly due to suppuration of lymphatic lumbar glands.
..	1	...	...	...	...	...	...	...	1	...	...	...	
..	...	...	1	1	...	...	...	...	1	1	...	...	No joint disease.
..	...	2	1	1	...	...	...	...	4	...	...	...	Ditto.
1	...	1	...	...	...	...	...	...	1	1	...	...	No diseased bone detected.
..	...	...	1	...	...	...	...	...	1	...	...	...	Nature of abscess undetermined.
..	1	1	1	...	...	...	...	...	3	...	...	...	1 cellular, 2 periosteal.
..	...	...	1	...	...	...	...	...	1	...	...	...	Chronic cellular.
..	...	1	2	...	...	...	...	...	1	1	...	1	Death: cystitis, bronchitis.
..	2	1	2	...	...	...	...	...	5	...	...	...	1 followed by fistula, which was divided.
..	1	...	1	...	...	...	...	...	2	...	...	...	
..	1	...	...	...	...	...	...	...	1	...	...	...	? nature, no stricture.
.	1	...	...	...	...	...	...	...	1	...	...	...	Dental caries.
5	1	2	...	...	...	...	...	...	7	...	...	1	Male, æt. 81, died from exhaustion.
..	1	...	1	..	...	...	...	...	2	...	...	...	1 parametritis, 1 perimetritis.
..	...	2	2	...	...	...	...	...	4	...	...	...	Of neck, arm, knee, foot.
..	...	...	1	...	...	...	...	...	1	...	...	...	Of arm, reamputation.
..	...	1	...	...	...	...	...	...	...	1	...	...	Also of toes, following chilblains.
..	...	3	...	...	...	...	...	...	3	...	...	...	2 following bubo, 1 spike wound.
..	...	2	...	1	...	...	...	...	3	...	...	...	Syphilitic.
1	3	12	9	4	...	1	...	...	26	4	...	...	After scald 2, gunshot wound 1, injury 4, fracture 1, erythema 1, splint sore 2, varicose 3, abscess 1, of stump 1; 4 eczematous, 5 syphilitic, 1 amputation of thigh for ulceration, 1 of leg.
...	2	1	2	...	...	...	...	...	3	2	...	...	2 perforating, 2 phagedænic; in 1 talipes clavus.
...	...	1	...	...	...	...	...	...	1	...	...	...	? Syphilitic.
...	2	2	...	1	...	...	...	...	5	...	...	...	1 of mamma, 4 of leg.
...	...	1	...	...	...	...	...	...	...	1	...	...	Purpurous condition of scar following scald.
1	...	...	...	...	...	...	...	...	1	...	...	...	Face after injury.
...	2	...	...	...	...	...	...	...	...	2	...	...	1 developed in India, 1 at home.
...	...	1	...	...	...	...	...	...	1	...	...	...	No known cause.
...	...	1	...	...	...	...	...	...	1	...	...	...	Of hand following wound.

TABLE II.—

INJURIES.	Sex.		Ages.								Duration before admission.						
	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Under 1 hour.	Hrs. 1–6	Hrs. 7–12	Hrs. 13–24	Dys. 1–3	Dys. 3–6	Above 6 days.
GENERAL INJURIES.																	
Burns . . .	14	20	5	6	9	5	3	2	1	3	24	5	...	...	1	2	...
Scalds . . .	20	11	22	2	3	1	2	1	...	...	20	1	1	2	1	1	1
LOCAL INJURIES.																	
Injuries of the head—																	
Scalp wound . .	26	4	...	2	5	1	8	5	7	2	18	3	1	2	1	1	1
Scalp contusion . .	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...
Concussion . .	27	5	6	9	7	5	3	1	1	...	15	5	3	2	1	1	...
Fracture of vault .	6	1	4	1	...	1	...	...	...	1	4	...	...	...	1	...	1
Fracture of base .	11	2	...	1	5	1	5	1	...	...	10	1	...	1	...	...	...
Injuries of the face—																	
Wounds . . .	6	1	...	...	...	1	3	...	2	1	6	...	...	...	1	...	...
Contusion of face .	1	3	1	...	...	2	1	...	...	...	4	...	...	...	...	...	...
Fracture of—																	
Inferior maxilla . .	2	1	...	1	...	1	1	...	...	...	3	...	...	...	...	...	...
Superior maxilla .	...	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...
Dislocation of—																	
Inferior maxilla. .	1	1	...	...	...	...	...	2	...	...	...	...	...	...	...	...	2
Malar bone . .	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Eye—																	
Injury to eyeball .	3	1	...	...	2	2	...	...	...	...	2	2	...	...	...	...	...
Contusion of lids .	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...
Neck—																	
Wound of . . .	10	1	...	...	...	4	1	3	3	...	6	4	...	...	...	...	...
Swallowing pin, &c. .	1	1	2	...	...	...	...	...	...	...	2	...	...	...	...	...	...
Chest—																	
Contusion of parietes .	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...
Wound of, penetrating	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...
Fracture of ribs . .	10	1	...	...	...	1	2	1	6	1	5	3	...	...	...	...	...
Rupture of lung . .	1	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...
Back—																	
Contusion of . .	6	...	...	1	1	2	1	1	...	...	4	...	...	1	...	...	1
Sprain of . . .	3	1	...	...	1	2	...	...	1	...	4	...	...	...	...	...	...
Spine—																	
Fracture of . .	6	...	1	...	...	1	2	2	...	...	5	1	...	...	...	...	...
Dislocation of . .	2	...	...	...	1	...	...	1	...	...	1	...	...	...	...	...	1
Abdomen—																	
Contusion of . .	9	...	...	2	2	2	1	2	...	...	5	...	2	...	...	...	...
Wound of, penetrating	1	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Wound of parietes .	...	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...
Pelvis—																	
Contusion of . .	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...

Injuries.

Duration of residence.									Result.				Remarks.
ys. –4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
4	6	3	6	3	1	...	...	1	16	3	...	15	2 were collapse, 5 general, 1 of fourth degree.
5	6	12	7	...	...	...	...	1	25	2	...	4	1 died of variola, 1 had erysipelas, 1 tracheotomy.
4	9	13	3	1	...	...	...	...	29	...	...	1	8 bone exposed, 1 temporal artery divided.
1	...	...	...	...	...	...	...	...	1	...	...	...	
10	15	4	3	...	...	...	...	...	30	2	...	...	2 persistent facial paralysis, 5 bleeding from ear, 1 convulsions, 1 pneumonia.
4	...	2	...	1	...	...	...	...	2	1	...	4	1 readmission, 1 extensive general injuries.
7	1	3	2	...	...	...	...	...	4	...	...	9	1 lived a month, died from softening.
5	...	1	1	...	...	...	...	...	7	...	...	...	4 lacerated, the rest contused.
3	1	...	...	...	...	...	...	...	4	...	...	...	1 with epistaxis.
...	...	3	...	...	...	...	...	...	3	...	...	...	2 comminuted, 1 compound comminuted.
...	...	1	...	...	...	...	...	...	...	1	...	...	Of alveolar process, small loose piece of bone removed.
...	1	...	1	...	...	...	...	...	...	2	...	...	Both *old* dislocation; in 1 attempt at reduction.
1	...	...	...	...	...	...	...	...	...	...	1	...	Not recent.
...	1	3	...	...	...	...	...	...	2	2	...	...	2 extirpation, 2 complete loss of vision.
1	...	...	...	...	...	...	...	...	1	...	...	...	With extravasation.
4	...	5	1	1	...	...	...	...	9	...	...	2	7 extending into air-passages; all suicidal.
2	...	...	...	...	...	...	...	...	2	...	...	...	Pin two inches long; solid diet; passed on third day. 1 patient swallowed lucifer.
1	...	...	...	...	...	...	...	...	1	...	...	...	
...	1	...	...	...	...	...	...	...	1	...	...	...	Self-inflicted, punctured below heart's apex.
2	4	4	1	...	...	...	...	...	9	2	...	...	2 with emphysema, 2 subsequent bronchitis, 1 hæmaturia, 1 concussion, 1 fractured clavicle.
...	1	...	...	...	...	...	...	...	...	...	...	1	Died of hæmato-pneumo-thorax.
1	5	...	...	...	...	...	...	...	6	...	...	...	1 with sacral hæmatoma.
2	2	...	...	...	...	...	...	...	4	...	...	...	1 retention of urine for four days.
4	...	1	1	...	...	...	...	...	2	...	...	4	1 slight displacement of 12th dorsal, 1 fracture of spinous process.
1	1	...	...	...	...	...	...	...	...	...	1	1	1 *old*, 1 separation between 5th and 6th cervical.
4	4	...	1	...	...	...	...	...	8	1	...	...	1 hæmaturia, ? laceration of kidney, 1 hæmatemesis, 1 collapse.
1	...	...	...	...	...	...	...	...	1	...	...	...	Puncture of liver by rusty needle.
...	1	...	...	...	...	...	...	...	1	...	...	...	By needle.
...	1	...	...	...	...	...	...	...	1	...	...	...	

TABLE II—

INJURIES.	Sex.		Ages.								Duration before admission.						
	M	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Under 1 hour.	Hrs. 1–6	Hrs. 7–12	Hrs. 13–24	Dys. 1–3	Dys 3–6	Above 6 days.
LOCAL INJURIES—*continued.*																	
Pelvis—																	
Fracture of	4	...	1	...	1	...	1	...	1	...	3	...	...	...	...	...	...
Wound of genitals	4	2	1	...	2	1	...	2	...	...	3	1	...	...	...	...	...
Wound of perineum	...	2	2	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Wound of buttock	1	1	...	...	...	1	...	1	...	...	2	...	...	...	...	...	...
Contusion of perineum	2	...	2	...	...	...	...	...	...	...	1	...	1	...	...	...	...
Hæmatocele of cord	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
UPPER EXTREMITY.																	
Wounds	9	2	2	3	2	...	3	1	...	...	5	...	...	...	3	1	2
Contusions	1	1	1	...	...	1	...	...	...	...	2	...	...	...	...	...	...
Wound of artery	2	1	...	...	...	1	...	2	...	...	1	1	...	...	...	...	1
Dislocation of—																	
Scapula from clavicle	1	1	...	...	...	1	...	...	1	...	...	1	...	...	...	...	...
Humerus	1	4	...	...	...	...	2	2	1	...	1	1	...	...	...	...	2
Fracture of—																	
Clavicle	2	...	...	1	1	...	...	...	...	...	2	...	...	...	...	...	...
Humerus, simple	6	1	...	2	1	...	1	1	1	1	5	1	...	...	...	...	...
„ compound	6	1	...	2	2	2	1	...	...	...	3	3	...	...	...	...	...
„ comminuted	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...
Ulna	2	...	...	...	1	...	1	...	...	...	...	...	1	...	...	...	...
Radius	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...
Ulna and radius	1	2	...	...	2	...	...	...	1	...	2	...	...	...	...	...	1
Hand & fingers, comp. and comminuted	5	...	...	...	2	1	2	...	...	...	5	...	...	...	...	...	...
LOWER EXTREMITY.																	
Wounds of—																	
Thigh	4	1	...	1	2	1	1	...	...	...	2	1	...	...	...	...	1
Leg	7	1	...	...	2	2	1	...	1	2	3	1	1	1	...	...	...
Knee	6	1	...	...	6	...	...	1	...	...	4	1	...	...	...	...	1
Foot	5	...	...	...	2	3	...	...	...	...	2	1	...	...	...	...	...
Wound of artery	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...
Contusion of—																	
Groin	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...
Thigh	3	...	1	...	...	1	1	...	...	...	2	1	...	...	...	...	...
Leg	1	1	...	...	...	1	...	1	...	...	1	...	...	...	...	...	...
Knee	2	...	...	...	...	1	1	...	...	...	2	...	...	...	...	...	...
Ankle	2	...	...	...	...	...	1	1	...	...	2	...	...	...	...	...	...

continued.

Duration of residence.									Result.				Remarks.
Yrs. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
1	...	3	...	...	...	...	...	...	3	...	...	1	Fatal case with fractured ribs and dislocation of thigh.
1	...	4	1	...	...	...	...	...	6	...	...	...	3 scrotum, 1 penis, 1 vulva, 1 vagina.
..	...	...	1	1	...	...	...	...	1	1	...	...	Into rectum.
..	1	1	...	...	...	...	...	...	2	...	...	...	
1	1	...	...	...	...	...	...	...	2	...	...	...	1 slight extravasation of urine.
1	...	...	...	...	...	...	...	...	1	...	...	...	
1	3	5	1	1	...	...	...	...	11	...	...	...	1 gunshot of palm.
1	1	...	...	...	...	...	...	...	2	...	...	...	1 of arms, 1 of shoulder.
..	1	2	...	...	...	...	...	...	3	...	...	...	2 of radial, 1 palmar arch.
..	1	1	...	...	...	...	...	...	1	1	...	...	Dislocation downwards.
1	2	2	...	...	...	...	...	...	4	1	...	...	2 recent, 1 of three, 1 of eight, 1 of eleven weeks' standing; 4 reduced, 1 failure.
1	...	1	...	...	...	...	...	...	2	...	...	...	1 bilateral dislocation.
..	2	4	1	...	...	...	...	...	5	2	...	...	1 into elbow, 1 slightly comminuted.
1	1	2	2	...	1	...	...	...	7	...	..	...	3 into elbow, 2 amputation of arms.
..	...	...	1	...	...	...	...	...	1	...	...	...	Into elbow-joint.
..	1	1	...	...	...	...	...	...	2	...	...	...	1 compound.
..	1	...	...	...	...	...	...	...	1	...	...	...	Concussion, and wound not leading to fracture.
..	1	1	1	...	...	...	...	...	3	...	...	...	2 compound comminuted and amputation, 1 green-stick.
..	1	1	3	...	...	...	...	...	5	...	...	...	In 3 amputation of fingers.
..	...	1	3	...	1	...	...	...	5	...	...	...	4 lacerated, 1 punctured.
1	1	1	5	...	...	...	...	...	7	...	...	1	All lacerated, 1 developed erysipelas, 1 extensive, necessitating amputation, proving fatal.
..	1	2	2	2	...	...	...	...	7	...	...	...	1 into joint, 2 incised, 1 punctured, 4 lacerated.
..	2	1	2	...	...	...	...	...	5	...	...	...	1 followed by angeioleucitis.
..	...	...	1	...	...	...	...	...	1	...	...	...	Rupture of femoral artery, large hæmatoma.
1	...	...	...	...	...	...	...	...	1	...	...	...	Hæmatoma, rupture of sartorius.
1	1	...	1	...	...	...	...	...	3	...	...	...	1 general contusions.
..	2	...	...	...	...	...	...	...	2	...	...	...	1 not recent.
1	1	...	...	...	...	...	...	...	2	...	...	...	1 effusion into bursa prepatellaris.
..	1	1	...	...	...	...	...	...	2	...	...	...	With synovitis.

TABLE II—

INJURIES.	Sex.		Ages.								Duration before admission.							
	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Under 1 hour.	Hrs. 1–6	Hrs. 7–12	Hrs. 13–24	Dys. 1–3	Dys 3–6	Above 6 days.	Not re-
LOWER EXTREMITY—*continued.*																		
Dislocation of—																		
Femur	1	2	...	...	1	2	...	...	...	...	1	...	...	...	1	...	1	
Astragalus	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	
Fracture of femur—																		
a. Simple	38	16	20	10	5	2	3	3	5	6	31	10	...	...	1	1	7	
b. Comminuted	2	...	...	...	1	1	...	...	...	...	2	...	...	...	...	...	...	
c. Compound	4	...	1	1	1	1	...	...	...	...	2	1	..	...	...	...	...	
d. Comp. comminuted	3	...	...	...	1	1	1	...	...	...	2	1	...	...	...	...	...	
Fracture of tibia—																		
a. Simple	18	1	4	2	5	3	1	2	2	...	10	4	...	...	...	...	...	
b. Compound	3	...	...	...	...	...	1	...	2	...	1	...	...	...	...	2	...	
c. Comminuted	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	
d. Ununited	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	
Fracture of fibula—																		
a. Simple	38	7	...	1	6	11	8	11	6	2	25	10	6	...	...	...	...	
b. Comp. comminuted	...	1	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	
Fracture of tibia and fibula—																		
a. Simple	42	16	3	1	11	10	14	11	3	5	45	3	1	1	1	2	...	
b. Compound	7	1	...	1	1	3	3	...	...	...	6	...	...	...	...	...	1	
c. Comminuted	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	
d. Comp. comminuted	8	3	...	3	2	3	2	...	...	1	8	3	...	...	...	...	...	
e. Ununited	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	
Fracture of patella	8	4	...	...	...	3	3	4	1	1	9	1	...	...	1	...	...	
Fracture of astragalus.	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	
Fracture of bones of foot—																		
a. Simple	1	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	
b. Comp. comminuted	2	...	...	...	1	...	1	...	...	...	2	...	...	...	...	...	...	
Synovitis (*traumatic*)—																		
Knee	14	3	...	1	2	3	6	3	1	1	10	1	...	...	1	...	3	
Hip	3	...	...	...	1	...	...	1	1	...	2	...	...	...	1	...	...	
Ankle	4	2	...	...	2	...	1	3	...	...	4	1	...	...	...	...	...	
Rupture of ligamentum patellæ	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	

continued.

Duration of residence.									Result.				Remarks.
Dys. 1–4	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
...	1	...	2	...	...	...	...	...	2	1	...	...	1 each, dorsal, sciatic, thyroid.
...	...	1	...	...	...	...	...	...	...	1	...	...	Slight rotatory displacement.
...	1	16	29	8	...	...	...	...	50	4	...	...	
...	...	...	2	...	...	...	...	...	2	...	...	...	2 inches shortening, 1 into knee.
...	...	...	3	1	...	...	...	...	4	...	...	...	1 into knee, amputation.
3	...	...	...	...	...	...	...	...	...	...	...	3	2 amputation at hip, 1 fractured pelvis.
1	4	1	13	...	...	...	...	...	12	7	...	...	
...	...	2	1	...	...	...	...	...	1	2	...	...	2 old cases of nine weeks' standing.
...	...	1	...	...	...	...	...	...	1	...	...	...	Of internal malleolus.
...	...	...	1	...	...	...	...	...	1	...	...	...	Operation with pins.
...	23	13	9	...	...	...	...	...	26	19	...	...	2 cases had synovitis of ankle.
...	...	...	...	1	...	...	...	...	1	...	...	...	
2	7	24	25	...	...	...	...	...	44	13	...	1	Death: rupture of kidney, wound of scrotum and arm.
1	...	...	4	1	1	1	...	...	7	...	...	1	1 followed by necrosis, 1 with fractured femur, amputation.
...	...	...	1	...	...	...	...	...	1	...	...	...	
2	...	...	6	2	1	...	...	...	9	...	...	2	5 amputation of thigh, 4 of leg, 1 case of erysipelas, 1 died of shock.
...	...	1	...	...	...	...	...	...	...	1	...	...	
..	...	2	10	...	...	...	...	...	12	...	...	...	In 1 severe traumatic synovitis.
...	...	...	1	...	...	...	...	...	1	...	...	...	With fracture of external malleolus.
1	...	...	...	...	...	...	...	...	1	...	...	...	Metatarsal bones.
...	...	1	1	...	...	...	...	...	2	...	...	...	In 1 Syme's amputation, 1 amputation of toe.
4	5	6	2	...	...	...	...	...	16	1	...	...	1 due to loose body in joint.
...	1	2	...	...	...	...	...	...	3	...	...	...	
1	1	4	...	...	...	...	...	...	6	...	...	...	
...	...	...	1	...	...	...	...	...	1	...	...	...	Also of internal lateral ligament.

TABLE II—

INJURIES.	Sex.		Ages.							Duration before admission.						
	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above 60	Under 1 hour.	Hrs. 1–6	Hrs. 7–12	Hrs. 13–24	Dys. 1–3	Dys. 3–6	Above 6 days.	Not stated.
UNCLASSIFIED.																		
Medical . . .	3	7	...	...	3	3	1	1	...	2	...	...	...	...	...	...	8	
Ophthalmic cases .	2	2	1	...	...	3	...	...	...	...	...	...	...	...	...	1	2	
Trivial cases . .	...	3	...	...	2	...	1	...	...	...	...	...	...	...	...	...	...	
Ophthalmic cases, &c., not included in above report . .	39	112	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Brought in dead or dying . . .	6	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Total . .	1126	933																
	2059																	

continued.

Duration of residence.									Result.				Remarks.
ys. –4	Dys. 5–13	Wks 2–4	Mts 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
2	2	3	3	...	...	...	...	...	2	7	...	1	Disease of abdomen, mammary neuralgia, hysteria, pregnancy, rheumatism, pneumonia.
..	...	1	2	1	...	...	...	...	3	1	...	...	Atrophy of eyeball, keratitis, gonorrhœal ophthalmia, disease of lids; extirpation in 2 cases.
1	2	...	...	...	...	...	...	...	1	1	1	...	1 case *nil*, 1 treatment after amputation.
..	...	...	...	...	...	...	...	...	85	58	...	...	
..	...	...	...	...	...	...	...	...	...	...	...	7	
									1391	477	59	132	
									2059				

TABLE III.—

SURGICAL OPERATIONS.	Sex.		Ages.							
	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above
REMOVAL OF TUMOURS AND GROWTHS.										
Amputation of breast	...	21	...	...	...	...	4	13	3	
Removal of axillary glands	...	1	...	...	...	...	...	...	1	
Castration for cancer testis	1	...	...	...	...	1	...	...	...	
For epithelioma of tongue	3	1	...	...	...	...	1	1	1	
„ of lower lip	3	...	...	...	...	...	...	...	2	
„ of nose	1	1	...	...	...	...	...	...	1	
„ of scrotum	1	...	...	...	...	...	...	...	...	
„ of penis	2	...	...	...	...	...	...	...	1	
For sarcoma of lower jaw	1	2	...	2	...	...	...	...	1	
„ of upper jaw	1	1	...	...	...	...	...	1	...	
„ of palate	...	1	...	...	...	...	1	...	...	
„ of scapula	1	...	...	...	...	...	...	...	...	
„ of hip	...	1	...	...	...	...	...	1	...	
„ of thigh	...	1	...	...	...	...	...	1	...	
„ of parotid	...	1	...	...	...	...	1	...	...	
„ of groin	...	1	...	...	...	...	...	...	1	
For adenoma of breast	...	5	...	...	...	3	1	...	1	
For myxoma of fingers	1	...	...	...	...	...	...	1	...	
For enchondroma of parotid	2	...	...	...	...	...	1	1	...	
„ of toe	...	1	...	...	...	...	1	...	...	
For lipoma	3	7	...	...	...	1	2	4	3	
For papilloma	2	4	...	...	2	2	1	1	...	
For fibroma	1	4	1	...	...	1	3	...	...	
For angioma	...	2	...	...	1	1	...	...	...	
For exostosis	1	...	...	...	...	1	...	...	...	
For nævus vascularis	2	4	6	...	...	...	...	...	...	
For rodent ulcer	1	1	...	...	...	...	1	...	...	
For lupus	...	1	...	1	...	...	...	...	...	
For keloid	1	...	...	...	1	...	...	...	...	
For cystic disease of ovary (ovariotomy)	...	9	...	...	...	5	3	1	...	
For sebaceous tumour	2	4	...	...	1	...	2	2	...	
For various cysts	5	4	...	...	1	5	1	...	2	
CIRCULATORY SYSTEM.										
Ligature of axillary artery	1	...	...	...	...	...	1	...	...	
„ radial artery	1	...	...	...	...	...	...	1	...	
„ metacarpal artery	1	...	...	...	...	...	...	1	...	
„ common femoral	1	...	...	...	...	...	...	1	...	
Aneurism of femoral artery (application of Petit's tourniquet)	1	...	...	...	...	...	1	...	...	
Obliteration of varicose veins	2	1	...	...	...	2	...	1	...	
Plugging nares for epistaxis	3	...	...	...	...	1	...	1	1	

Surgical Operations.

Duration of residence after operation.									Result.				Remarks.
Less than 4 days.	Dys. 5–13	Wks 2–4	Mts 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
1	...	13	4	3	...	...	...	...	17	1	...	3	Amputation entire or partial: 19 for scirrhus, 2 for cystic sarcoma.
...	...	1	...	...	...	...	...	...	1	...	...	...	For scirrhus.
...	1	...	...	...	...	...	...	...	...	...	...	1	Died of septicæmia.
...	...	3	1	...	...	...	...	...	4	...	...	...	2 by galvano-cautery, 1 by écraseur, 1 by knife.
...	1	2	...	...	...	...	...	...	3	...	...	...	V-shaped incision, harelip pins.
...	1	1	...	...	...	...	...	...	2	...	...	...	1 by thermo-cautère, 1 by incision.
...	...	...	...	...	1	...	...	...	1	...	...	...	With knife.
...	...	1	...	1	...	...	...	...	2	...	...	...	Amputation of penis; circumcision.
1	...	2	...	...	...	...	...	...	3	...	...	...	
1	...	1	...	...	...	...	...	...	1	...	...	1	In 1 infiltration (deep) of cervical glands.
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	...	1	...	...	...	...	...	1	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	1	...	...	...	...	...	...	...	...	...	...	1	Recurrent; septicæmia.
...	...	1	...	...	...	...	...	...	1	...	...	...	Recurrent.
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	1	...	3	1	...	...	...	...	5	...	...	...	
...	...	...	1	...	...	...	...	...	1	...	...	...	Removal of finger.
...	1	1	...	...	...	...	...	...	2	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	Of terminal phalanx of great toe.
...	3	2	3	2	...	...	...	...	10	...	...	...	Of thigh, back, arm, pharynx, neck, and shoulder.
...	3	2	1	...	...	...	...	...	6	...	...	...	About anus, of hand, of mamma.
1	1	2	1	...	...	...	...	...	5	...	...	...	
...	...	1	1	...	...	...	...	...	2	...	...	...	Cirsoid aneurism, vascular tumour.
...	...	...	1	...	...	...	...	...	1	...	...	...	Of femur.
1	...	...	1	...	...	4	...	...	6	...	...	...	2 Wood's ligature (subcutaneous), 1 knife, 1 galvano-cautery.
...	...	1	1	...	...	...	...	...	2	...	...	...	Excision.
...	...	1	...	...	...	...	...	...	...	1	...	...	Scraping.
...	...	1	...	...	...	...	...	...	1	...	...	...	Of ear, recurrent.
4	1	1	3	...	...	...	...	...	4	...	...	5	All protected by antiseptics.
3	2	1	...	...	...	...	...	...	6	...	...	...	1 of neck, 4 of scalp.
1	2	5	1	...	...	...	...	...	8	1	...	...	Of foot, labium, anus, scalp, and leg.
...	...	1	...	...	...	...	...	...	1	...	...	...	For aneurism.
...	...	1	...	...	...	...	...	...	1	...	...	...	For wound.
...	1	...	...	...	...	...	...	...	1	...	...	...	Ditto.
...	...	...	...	1	...	...	...	...	1	...	...	...	For aneurism.
...	...	...	1	...	...	...	...	...	1	...	...	...	
...	...	2	1	...	...	...	...	...	3	...	...	...	2 by excision of veins.
3	...	...	...	...	...	...	...	...	3	...	...	...	

TABLE III—

SURGICAL OPERATIONS.	Sex.		Ages.							
	M.	F.	Under 5	5–10	–20	–30	–40	–50	–60	Above
RESPIRATORY SYSTEM.										
Tracheotomy	3	3	4	2	...	...	...	...	...	..
DIGESTIVE SYSTEM.										
Excision of tonsils	1	2	...	1	2	...	...	...	...	..
Strangulated inguinal hernia	6	...	...	...	...	...	3	1	...	
„ femoral hernia	7	6	...	...	...	1	1	1	3	
„ umbilical hernia	1	...	...	...	...	...	...	...	1	..
Division of fistula in ano	15	8	...	...	3	5	6	4	3	
Removal of hæmorrhoids	7	4	...	...	...	3	5	1	1	
Fissure of anus	1	3	...	...	...	...	4	...	...	..
Disease of tongue	1	...	...	...	...	...	...	...	1	..
Littré's operation for intestinal obstruction	...	1	...	...	...	...	1	...	...	..
GENITO-URINARY SYSTEM.										
Tapping hydrocele, with and without radical cure	7	...	...	...	1	1	2	1	2	..
Varicocele	2	...	...	...	2	...	...	...	...	..
Recto-vaginal fistula	...	2	...	...	...	...	...	2	...	..
Ruptured perineum	...	2	1	...	...	1	...	...	...	..
Circumcision	3	...	...	1	...	2	...	...	...	..
Removal of warts	1	13	...	...	10	4	...	...	...	..
Puncture above pubes	2	...	...	...	...	...	...	1	1	...
Paracentesis of ovarian cyst	...	7	...	...	1	1	1	...	4	...
Cystotomy	1	...	...	...	...	1	...	...	...	...
Lithotomy (lateral)	6	...	...	5	1	...	...	...	...	...
For urethral calculus	1	...	...	...	...	...	1	...	...	...
Internal urethrotomy	7	...	...	...	...	2	...	4	...	1
Forcible dilatation	1	...	...	...	...	...	...	...	1	...
Perineal section	10	...	...	...	...	3	4	2	1	...
LOCOMOTORY SYSTEM.										
Removal of necrosed bone for disease of—										
Femur	13	3	1	3	5	2	2	3	...	...
Tibia	11	6	...	4	8	2	1	2	...	...
Fibula	1	...	...	1	...	...	...	...	...	...
Skull	1	...	...	...	...	...	...	1	...	...
Lower jaw	3	...	...	2	1	...	...	...	...	...
Scapula	...	1	...	...	1	...	...	...	...	...

continued.

Duration of residence after operation.									Result.				Remarks.
Under 14 days.	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
3	1	...	2	...	...	...	...	...	3	...	...	3	1 for tetanic spasm, 2 for croup, 2 for diphtheria, 1 œdema of glottis.
1	1	...	1	...	...	...	...	...	2	1	...	...	
1	...	3	...	1	...	1	...	...	5	...	...	1	In all the cases the hernial sac was opened.
1	1	3	8	...	...	...	...	...	10	...	...	3	In 2 sac unopened.
1	...	...	...	...	...	...	...	...	...	...	...	1	
1	9	8	3	2	...	...	...	...	22	1	...	...	
...	6	5	...	...	...	...	...	...	9	2	...	...	Clamp and cautery 5, excision 2, ligature 2.
...	2	2	...	...	...	...	...	...	4	...	...	...	Incision partially dividing sphincter.
...	...	1	...	...	...	...	...	...	1	...	...	...	Removal of anterior third through mouth with galvano-cautery.
1	...	...	...	...	...	...	...	...	...	...	...	1	
1	4	1	...	1	...	...	...	...	5	2	...	...	6 radical cure, 1 simple paracentesis.
...	1	1	...	...	...	...	...	...	2	...	...	...	1 application of Wood's spring clip; 1 pins and sutures.
...	...	...	1	1	...	...	...	...	2	...	...	...	
...	...	...	2	...	...	...	...	...	1	1	...	...	Margins pared; quilled sutures.
1	2	...	...	...	...	...	...	...	3	...	...	...	For sloughing chancre and phimosis.
...	1	11	2	...	...	...	...	...	14	...	...	...	
1	1	...	...	...	...	...	...	...	1	...	...	1	For retention.
...	1	2	2	...	...	...	...	...	2	4	...	1	
...	...	...	1	...	...	...	...	...	1	...	...	...	For chronic cystitis.
...	...	1	2	3	...	...	...	...	5	...	...	1	Vesical calculus.
...	...	1	...	...	...	...	...	...	1	...	...	...	
1	1	2	1	2	...	...	...	...	5	2	...	...	All for stricture.
...	...	...	1	...	...	...	...	...	1	...	...	...	Holt's dilator employed.
2	...	4	2	1	1	...	...	...	6	1	...	3	1 for stricture, 1 retention, 8 extravasation.
...	1	3	3	3	3	3	...	...	12	4	...	...	
...	...	6	7	3	1	...	...	...	12	5	...	...	
...	1	...	...	...	...	...	...	...	1	...	...	...	
1	...	...	...	...	...	...	...	...	...	1	...	...	
...	...	3	...	...	...	...	...	...	2	1	...	...	For disease of ramus.
...	1	...	...	...	...	...	...	...	1	...	...	...	Disease at junction of acromion and spinous processes.

TABLE III—

SURGICAL OPERATIONS.	Sex.		Ages.							
	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above
LOCOMOTORY SYSTEM—*continued.*										
Humerus	3	2	...	1	1	2	...	...	...	
Radius	1	...	...	...	...	...	...	...	...	
Ilium	1	...	...	...	...	1	...	...	...	
Caries of—										
Mastoid bone	...	1	...	...	1	...	...	...	...	
Tarsus	4	3	1	...	4	1	1	...	...	
Metatarsus	2	...	...	1	...	1	...	...	...	
Excision of—										
Temporo-maxillary-joint (partial)	...	1	...	1	...	...	...	...	...	
Shoulder	...	2	...	...	1	1	...	...	...	
Elbow	7	4	2	2	4	2	...	1	...	
Wrist	2	1	...	...	1	1	1	...	...	
Hip	11	3	5	3	5	...	1	...	...	
Knee	5	8	2	3	6	1	1	...	...	
Ankle	1	1	...	1	1	...	...	...	...	
Metatarso-phalangeal-joint	2	...	1	...	...	1	...	...	...	
Tenotomy for club-foot	7	9	7	4	4	1	...	...	...	
„ deformity of hand	...	1	...	1	...	...	...	...	...	
Division of ramus of jaw (Ritzolli's operation)	1	...	...	1	...	...	...	...	...	
Subcutaneous division of femur	15	9	9	5	10	...	...	...	...	
„ „ of tibia	1	4	1	4	...	...	...	...	...	
Trephining of tibia	...	1	...	...	...	1	...	...	...	
Aspiration for disease of knee	1	1	1	...	...	...	...	1	...	
„ „ hip	1	...	...	1	...	...	...	...	...	
Forcible flexion of knee	1	1	1	...	...	1	...	...	...	
Removal of loose cartilage from knee	2	...	...	...	1	...	...	...	1	
Refracture of forearm	...	1	1	...	...	...	...	...	...	
Incision into suppurating knee	2	...	...	...	...	...	1	...	1	
For ununited fracture of tibia	1	...	...	...	1	...	...	...	...	
For ganglion of wrist (compound)	1	1	...	...	...	...	2	...	...	
Reduction of dislocation—										
Of lower jaw	...	1	...	...	...	...	...	1	...	
Of humerus	...	3	...	...	...	...	...	1	1	
Of femur	1	1	...	...	1	1	...	...	...	
Primary amputation.										
Of arm	3	1	1	...	...	2	1	...	...	
Of fingers	3	...	...	...	1	1	1	...	...	
Of thigh	6	1	...	1	...	4	2	...	...	
Of thigh at hip-joint	2	...	...	...	1	1	...	...	...	
Of leg	4	1	...	1	...	2	2	...	...	
Of foot	1	...	...	...	1	...	...	...	...	
Of toes	1	...	...	...	...	...	1	...	...	
Secondary amputation.										
Of fingers	...	1	1	...	...	...	...	...	...	

continued.

Duration of residence after operation.								Result.				Remarks.
14 days.	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
..	...	5	...	...	...	...	...	...	2	3	...	...	
..	...	1	...	...	...	...	...	...	...	1	...	...	At lower end.
..	...	...	...	1	...	...	...	...	1	...	...	...	
..	1	...	...	...	...	...	...	...	...	1	...	...	
..	1	1	2	1	1	1	...	...	5	2	...	...	
..	...	1	1	...	...	...	...	...	1	1	...	...	Disease of metatarsal bone of great toe.
..	...	...	...	1	...	...	...	...	...	1	...	...	For anchylosis.
1	...	...	...	...	1	...	...	...	1	...	...	1	For carious disease of joint. Death: acute pyæmia (before admission).
...	3	2	3	1	2	...	...	...	9	1	...	1	1 resection after old excision.
...	...	1	1	1	...	...	...	...	3	...	...	...	1 partial excision.
...	...	2	1	6	1	3	...	1	6	5	...	3	
...	...	...	1	6	4	1	1	...	12	1	...	...	
...	...	2	...	...	...	...	...	...	1	1	...	...	
...	...	2	...	...	...	...	...	...	2	...	...	...	
1	2	6	3	2	1	1	...	...	9	7	...	...	
...	...	...	1	...	...	...	...	...	1	...	...	...	
...	...	...	...	...	...	...	1	...	1	...	...	...	For cicatricial contraction.
...	...	...	6	12	3	2	1	...	22	2	...	...	1 for deformity after intra-uterine fracture.
...	...	...	1	3	1	...	...	...	5	...	...	...	
...	...	...	...	...	1	...	...	...	...	1	...	...	
...	...	...	1	1	...	...	...	...	...	2	...	...	
...	...	...	1	...	...	...	...	...	...	1	...	...	
...	...	...	1	1	...	...	...	...	...	2	...	...	
...	...	1	1	...	...	...	...	...	2	...	...	...	
...	1	...	...	...	...	...	...	...	1	...	...	...	
...	...	2	...	...	...	...	...	...	2	...	...	...	
...	...	...	1	...	...	...	...	...	1	...	...	...	Insertion of pins.
...	1	...	1	...	...	...	...	...	2	...	...	...	
...	1	...	...	...	...	...	...	...	...	1	...	...	
...	1	2	...	...	...	...	...	...	2	1	...	...	
...	1	1	...	...	...	...	...	...	2	...	...	...	
...	...	2	2	...	...	...	...	...	4	...	...	...	
...	1	1	1	...	...	...	...	...	3	...	...	...	
...	...	...	5	2	...	...	...	...	5	...	...	2	
2	...	...	...	...	...	...	...	...	...	...	...	2	Both died from shock of operation.
1	...	...	3	1	...	...	...	...	5	...	...	...	
...	...	...	1	...	...	...	...	...	1	...	...	...	Syme's amputation.
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	1	...	...	...	...	...	...	...	1	...	...	...	After crush of fingers.

TABLE III—

SURGICAL OPERATIONS.	Sex.		Ages.							
	M.	F.	Under 5	5–10	–20	–30	–40	–50	–6	Above
LOCOMOTORY SYSTEM—*continued.*										
Amputation for disease.										
Of arm	1	1	...	...	1	1	...	...	...	
Of arm at shoulder-joint	1	...	...	...	...	...	...	...	1	
Of fingers	2	3	...	...	...	2	2	...	1	
Of hand	...	1	...	...	1	...	...	...	...	
Of thigh	10	1	2	5	...	...	2	2	...	
Of thigh at hip-joint	1	...	...	...	1	...	...	...	...	
Of leg	1	1	...	...	...	1	...	...	1	
Of foot	4	1	...	...	3	...	1	...	1	
Of toes	3	...	...	...	1	1	...	...	...	
REPARATIVE OPERATIONS.										
For ectropion	1	...	...	1	...	...	...	...	...	
For cicatrix of burn	1	...	...	...	...	...	...	1	...	
For cleft-palate	4	5	...	1	7	1	...	...	...	
For harelip	9	10	18	...	...	1	...	...	...	
For imperforate hymen	...	1	...	...	1	...	...	...	...	
For extroversio vesicæ	5	...	...	3	2	...	...	...	...	
MISCELLANEOUS.										
Operation for ranula	1	...	...	...	1	...	...	...	...	
Extirpation of eyeball	2	2	...	...	1	3	...	...	...	
Paracentesis of—										
Iliac abscess	...	1	...	...	...	...	1	...	...	
Cervical abscess	...	1	...	1	...	...	...	...	...	
Thorax	1	...	...	1	...	...	...	...	...	
Abdomen	1	...	...	1	...	...	...	...	...	
Incision into psoas abscess	1	...	...	...	...	1	...	...	...	
„ „ cervical abscess	...	1	...	...	...	...	1	...	...	
Total	299	232								
	531									

The above list of operations does not include those performed

continued.

Duration of residence after operation.									Result.				Remarks.
Under 4 days.	Dys. 5–13	Wks 2–4	Mts. 1–2	Mts. 2–4	Mts. 4–6	Mts. 6–9	Mts. 9–12	Above a year.	C.	R.	U.	D.	
...	...	1	1	...	...	...	...	...	2	...	...	...	1 old case of excision, 1 conical stump.
...	...	...	1	...	...	...	...	...	...	...	...	1	Sarcoma of humerus.
...	...	2	2	1	...	...	...	...	5	...	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	Removal of rudimentary hand.
1	1	1	6	1	1	...	...	...	7	...	...	4	2 died of pyæmia, 1 exhaustion, 1 shock.
...	...	...	...	1	...	...	...	...	1	...	...	...	For sarcoma of thigh.
...	...	...	1	1	...	...	...	...	2	...	...	..	
...	...	...	5	...	...	...	...	...	5	...	...	...	Syme's amputation.
...	...	3	...	...	...	...	...	...	3	...	...	...	For ganglion, caries, and deformity.
..	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	...	1	...	...	...	...	...	1	...	...	...	Burn of thigh.
...	1	3	4	1	...	...	...	...	6	2	1	...	
7	4	4	3	1	...	...	...	...	15	3	...	1	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	...	1	...	...	2	2	...	...	2	3	...	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	
...	1	1	2	...	...	...	...	...	4	...	...	...	For injury, atrophy, gonorrhœal ophthalmia.
...	...	...	1	...	...	...	...	...	...	1	...	...	In connection with encephaloid disease of uterus.
...	1	...	...	...	...	...	...	...	...	1	...	...	
...	1	...	...	...	...	...	...	...	...	...	...	1	
1	...	...	...	...	...	...	...	...	...	...	...	1	
...	...	...	...	1	...	...	...	...	1	...	...	...	
...	...	...	1	...	...	...	...	...	1	...	...	...	
									415	72	1	43	
									531				

in the medical, obstetrical, and ophthalmic departments.

SUMMARY OF DISEASES.

GENERAL DISEASES.

Erysipelas (arising).—C. 35, R. 5, D. 1. 41 cases arose in the wards, of which 23 were males, 18 females. (See Special Table III, Erysipelas.)

Erysipelas (admitted as such).—C. 23, R. 1, D. 3. Of face 3; of arm and hand 6; of thigh 3; of leg 12; of foot 3.

Pyæmia (arising).—D. 6. Arising in connection with scalp wound 1; disease of elbow followed by excision 1; acute periostitis of tibia 1; disease of knee-joint, for which amputation of thigh was performed, in 2 cases; disease of ankle-joint 1. (See Special Table II, Pyæmia.)

Pyæmia (admitted as such).—D. 1. Swelling and pain of shoulder of 4 days' duration; excision of shoulder-joint; temperature before operation 105°; acute necrosis of upper part of diaphysis impinging upon epiphysis; no implication of articulation; antiseptic dressing; temperature after operation 101° and 102°. Child lived 1 day after operation. P.M.—Ostitis of humerus; pyæmic abscess of elbow; suppurative pericarditis.

Syphilis—

1. *Primary by—*

a. Indurated chancre.—Male 1, females 14. C. 14, R. 1. With eruption 3; gonorrhœa 9; distinct amygdaloid glands 5. Male, æt. 6, hard sore beneath penis, indurated glands, phimosis, balanitis, psoriasis, enlarged tonsils.

2. *Secondary by—*

a. Condylomata.—Females 47. C. 42, R. 5. In 15 complicated with secondary eruption; 4 with warts; 13 with gonorrhœa; 1 each with fissure and ulceration of tongue, fissure of anus, rhagades of toes, pleurisy; chiefly about anus in 9.

b. Eruptions.—Females 37. C. 34, R. 3. Psoriasis and lepra 22, of whom 6 had spots of psoriasis guttata; roseola 12; ecthyma 1; papular eruption 2; 2 had fistula in ano; 1 iritis.

c. Iritis.—C. 1. Syphilitic sore 6 months ago; eruption a week after; double iritis 1 month; papillo-tubercular and macular eruption on face and chest; ulceration of fauces; mercurial course.

d. Ulceration of genitals.—C. 4, R. 1. 4 of vulva; 1 of anus. 1 with fissures and ulcers of tongue and mucous tubercles on fauces; 1 with remains of old iritis.

3. *Tertiary by—*

a. Ulceration.—C. 1. Tertiary ulcers on thighs and trunk. Much improvement under Ol. Morrhuæ.

LOCAL DISEASES.

TUMOURS.

Carcinomata.

Scirrhus of—

a. Breast.—C. 11, R. 2, U. 1, D. 4. 3 cases unsuitable for operation. In 5 distinct family history of phthisis; in 2 only family history of cancer; axillary or cervical glandular enlargement in 10; complete amputation in 11.

b. Breast (recurrent).—C. 4, R. 1. Primary operation 1 year ago; 2 two years; 1 four years; 1 six years; recurrence noticed, months—1, 5, 6, 12, 24.

c. Face.—U. 1. Scirrhus below ear, probably also deep, interfering with mastication; deafness; fetid aural discharge.

d. Glands (axillary).—C. 1, R. 1. Removal of breast 8 and 11 years ago. 1 had axillary glands subsequently removed; recurrence in glands 4 and 5 months.

e. Rectum.—R. 2. 1 ? scirrhus. No family history of cancer. Both relieved with morphia suppositories.

Epithelioma of—

a. Tongue.—C. 4, U. 4, D. 1. 1 recurrent, of six weeks' duration. In 4 cases tongue removed with galvano-cautery, thermo-cautère, écraseur, and knife. In 6 distinct submaxillary glandular enlargement.

b. Lip.—C. 3, R. 1. Glandular infiltration in 2; 1 recurrent twelve months after operation; V-shaped incision in 3.

c. Nose.—C. 2. Removal by incision and thermo-cautère; 1 had also epitheliomatous growth of neck.

d. Genitals.—C. 3, R. 2, U. 1. Amputation of penis; removal of scrotum; circumcision. 1 followed blow; 1 in scar after perineal section; in 1 no assignable cause.

e. Anus.—R. 1, U. 1. 1 recurrent 4 months; 1 also of rectum, would not submit to colotomy.

f. Cicatrix.—U. 1. Burn of thigh 37 years ago; epithelioma 9 months. Large cauliflower growth, with tendency to bleed, 7 in. × 6 in.

Sarcomata.

1. *Spindle-celled—*

a. Lower jaw.—C. 2. 1 periosteal; 1 as epulis; both removed, with subjacent bone.

b. Palate.—C. 1. Size of walnut, in connection with carious teeth.

c. Shoulder.—C. 1. Size of fist; skin not infiltrated; glands not involved.

d. Humerus.—D. 1. Periosteal sarcoma of humerus; amputation at shoulder-joint, recurrence, hæmorrhage. P.M.—Secondary malignant growths of liver, kidney, pleura, and pericardium; cirrhosis of liver ? syphilitic.

e. Hip.—C. 1. Skin infiltrated; no glandular enlargement over hip in subcutaneous tissue.

f. Ilium.—U. 2. 1 following injury, abscess of groin; growth from vicinity of acetabulum; 1 of ilium and upper part of femur. No operation. Youths.

g. Thigh.—U. 1, D. 1. Both from femur (periosteal), 1 recurrent. 1 left at own request; 1 removed, with infiltrated glands. Died from septicæmia.

2. *Round-celled—*

a. Ethmoid.—D. 1. Supra-orbital pain 4 months; prominence of eyeball; myopia; septum nasi pushed to opposite side; no glandular enlargement; aortic valvular disease; delirium; death. P.M.—Growth invading brain; meningitis; abscess of brain.

b. Parotid.—C. 1. Recurrent deep attachments; removal followed by facial paralysis.

c. Groin.—C. 1. Structure microscopically round- and spindle-celled.

d. Lower extremity.—U. 1. Multiple sarcoma of thigh and leg; went at own request.

3. *Myeloid—*

a. Upper jaw.—C. 1, U. 1, D. 1. In 2 removal of upper jaw; 1 recurrent and unsuitable for operation; 1 died day of operation. P.M.—Malignant deposit in left cervical lymphatic glands; bloody coagula in bronchial tubes.

b. Lower jaw.—C. 1. Epulis; removal, with triangular piece of bone; glandular enlargement.

c. Femur.—C. 1. Of 4 months' duration. Circumference of thigh 4 in. in excess of opposite; no glandular infiltration; no pulsation. *Amputation at hip-joint* under digital compression of abdominal aorta; antiseptic; no bad symptoms. Discharged cured three months after.

4. *Cystic—*

a. Breast.—C. 2. In both complete amputation; no glandular trouble; operation in 1 followed by erysipelas.

Cystic of—

Ovary.—C. 8, R. 3, U. 4, D. 7.

Cases in which ovariotomy was performed 9. C. 4, D. 5. All antiseptic.

Case 1.—S. V., æt. 26, married. Duration 9 months, noticed after parturition. 37 pints of fluid removed by tapping 5 weeks before operation. Superior and posterior adhesions. Cyst chiefly bilobed; multilocular. Wound healed by first intention. Discharged 5 weeks after operation.

Case 2.—M. G., æt. 28, single. Duration 12 months. Slight anterior adhesions. Cyst chiefly unilocular (three smaller cysts). Pedicle tied with silk. Right ovary. Discharged 4 weeks after operation.

Case 3.—E. P., æt. 49, married. Duration 12 months. Tapped 10 months before operation. No adhesions. Tumours small and collapsed. Recovered without unfavorable symptoms. Discharged 3 weeks after operation.

Case 4.—M. S., æt. 56. Duration 7 months. Tapped 10 weeks before operation. Few slight adhesions. Left ovary. Multilocular and in part solid. Pedicle ligatured and returned. Highest temperature after operation 99·6°. Discharged 2 months after operation.

Case 5.—M. P., æt. 29, married. Duration 10 months. Tapped 3 months, and again 3 weeks before operation. Left ovary. Cyst multilocular, and consisting of many solid and semisolid portions. Pedicle ligatured and returned. Firm adhesions anteriorly; cyst wall incorporated with abdominal walls; during the breaking down of these there was hæmorrhage into peritoneal cavity. Shock during operation; died next day. P.M.—Acute peritonitis; fatty liver.

Case 6.—E. P., æt. 26, single. Duration 7 months. Multilocular. Right ovary. Lived 1 week after operation. Evening temperature averaging 103°. Temperature before death 105·8°; after death 106·2°. Peritonitis. No post-mortem.

Case 7.—H. G., æt. 30, married. Duration 18 months. Fibroid disease of uterus. Tapped 5 weeks before operation. Much ascitic fluid. Superior adhesions. Tumour solid. Bladder opened in first incision; fundus of uterus removed. Died 2 days after operation from shock and peritonitis.

Case 8.—S. W., æt. 48, married. Duration 20 years. Broad ligament cyst, chiefly unilocular. Ligature of pedicle with silk. Adhesions anteriorly to omentum, also superiorly. Vomiting till death, 2 days after operation. P.M.—Acute peritonitis; much general vascularity; no effusion of lymph.

Case 9.—I. A., æt. 50, widow 19 years. Duration 14 years. Left ovary. Anterior and superior adhesions. Pedicle broad, clamped externally, also ligatured. Cyst chiefly solid. Lived 2 days. No post-mortem.

NERVOUS SYSTEM.

Tetanus (admitted as such).—D. 1. Lacerated wound of scalp 6 days before admission; slight indentation of bone; 3 days after injury complained of stiff neck; following day was disinclined for food. When admitted was placed under chloroform; during cessation of anæsthesia had severe spasms; chloral and bromide of potassium per rectum; tracheotomy on account of spasm of glottis. P.M.—Nothing characteristic.

Tetanus (arising).—D. 1. Lacerated and contused wound of scalp, with bare bone. Day after admission temperature rose to 103·8°; delirium. Sloughing of scalp; temp. 105°. Tetanus on 9th day after accident; left eye screwed up; angle of mouth retracted; head thrown back; fixation of jaw; opisthotonos; spasms; dyspnœa; sweats; pleurosthotonos. Temp. 105·4°; pulse 180. No elevation of temperature after death.

CIRCULATORY SYSTEM.

Aneurism.—C. 3, U. 1. 1. Male, æt. 46, baker. Aneurism of right common femoral; 4 months; size of walnut. Esmarch's bandage and digital compression alternately for 1 hour and 20 minutes; 5 days after Carte's abdominal tourniquet applied, but failed. Ligature of external iliac with silk; ends cut short; antiseptic, catgut drainage; 2 days after pulsation in anterior and posterior tibials. First dressing 7 days after operation, and again 7 days subsequently; wound completely healed; very faint pulsation in sac.

2. Male, æt. 34, farrier. History of syphilis. Aneurism of femoral artery 1 month; 3½ in. diameter. Petit's tourniquet for 12 hours; interval of 12 hours; digital pressure 4 hours, followed by consolidation of sac.

3. Male, æt. 37. Aneurism of axillary artery 3 months. History of syphilis. Paralysis of extensors of wrist and fingers. Compression of sac upon musculo-spinal nerve. Digital pressure 50 hours, no result; a fortnight after ligature of axillary artery above and below sac; antiseptic; no improvement of paralysis, but complete consolidation of aneurism.

4. Female, æt. 58, widow. Aneurism of innominate artery; dysphagia; voice husky; pulsating swelling at root of neck; no inequality of pulse; right pupil swollen. No operation.

DIGESTIVE SYSTEM.

Hernia.—(See Special Table I, Hernia.)

Fistula in ano.—C. 19, R. 1. 5 admitted with ischio-rectal abscess, which subsequently led to fistula; 2 had also hæmorrhoids; in 4 family history of phthisis; 1, æt. 6, had symptoms of phthisis and tubercular meningitis.

Hæmorrhoids.—C. 12, R. 3. 6 muco-cutaneous; 6 internal; 3 chiefly external; 2 with prolapsus; 1 with fissure and condylomata.

Stricture of rectum.—Male 1, female 9. C. 2, R. 7, U. 1. 3 inflammatory; 7 syphilitic. 1 3½ inches from anus; 1 2½ inches; 1 2 inches; the remainder averaged between 2 and 3 inches from anal orifice; 3 with fistula; 1 with large ischio-rectal abscess followed by fistula; 2 with hæmorrhoids; 1 symptoms aggravated by retroflexion of uterus; 1 syphilitic with keratitis, for which iridectomy was performed. All treated by bougie alone or smeared with Ung. Hyd.

GENITO-URINARY SYSTEM.

Chronic orchitis.—C. 3, R. 1. 3 gave history of primary syphilis, 2 of which were followed by eruption; 2 swelling of both testes; 1 of left; all with hydrocele; 2 tapped. The 4 cases were treated successfully with iodide of potassium.

Hydrocele.—C. 4, R. 4. 2 double; 3 left; 3 right 1 encysted right of

4 years' duration; tapped before admission; relieved with suspensory bandage; 5 tapped, and injected with iodine.

Cystitis.—C. 2, R. 7, D. 2. Causes—1 phthisis; 3 ? calculus; 1 subacute; 3 enlarged prostate; 1 gonorrhœa; 1 stricture; 1 no assignable cause; 3 with hæmaturia; 5 classed as vesical irritability; 1 case, a male, æt. 23, sailor, gave history of gonorrhœa one year ago, with bladder trouble since; much pain at neck of bladder; *cystotomy* performed, consisting of lateral section in perineum extending into cavity of bladder; prostate notched, giving much relief. Fatal cases both due to uræmia.

Calculus vesicæ.—Males 7, female 1. C. 5, R. 1, U. 1, D. 1. 1 ? calculus; 1 refused operation; lateral lithotomy in 6. Structure of calculus:—3 uric acid and phosphates; 1 triple phosphates and phosphates; 1 nitrate of ammonia; 1 oxalate of lime. Size:—1 $1\frac{1}{2} \times \frac{1}{2} \times \frac{3}{8}$ inch; 1 $\frac{3}{4} \times \frac{1}{4} \times \frac{1}{4}$; 1 size of bean; 1 size of hazel nut; 1 $1\frac{3}{8} \times 1\frac{1}{2} \times \frac{1}{2}$; 1 $1\frac{1}{2} \times 1\frac{1}{4} \times \frac{3}{8}$; 1 followed by recto-vesical fistula, which healed, but patient died two months after operation from cystitis and suppurative nephritis, with surgical kidney.

Stricture.—Males 35, female 1. C. 18, R. 16, U. 1, D. 1. 26 gave previous history of gonorrhœa; 4 of perineal injury; 6 of no known cause; 3 congestive; 2 spasmodic. *Complications.*—1 with gonorrhœa, orchitis, epididymitis; 2 with perineal fistula; 2 with perineal abscess; 1 with hæmaturia; 1 gonorrhœal rheumatism; 1 cystitis and bronchitis; 1 cystitis, phthisis, and tubercular testis. *Treatment.*—Continuous dilatation 5; gradual dilatation 23; internal urethrotomy 6; perineal puncture 1; Holt's dilator 1.

Extravasation of urine.—C. 3, R. 1, D. 3. *Fatal cases.*—1, æt. 55; stricture 5 years; extravasation 1 week. Patient admitted with rigors and scrotum the size of a child's head; large sloughing abscess cavity exposed behind scrotum, laying bare whole of spongy urethra. Several rigors, with high temperature, after operation. Died 26th day.

1, æt. 35, stricture 18 years, extravasation 4 days. Huge abscess cavity in front of prostate; much fœtor; urethra with its surrounding corpus spongiosum exposed, and in a sloughing condition; structures constituting stricture quite destroyed. Died night of operation; phthisis.

1, æt. 43. Stricture 9 years; extravasation 3 days; tongue dry and coated brown; urine fetid; breath urinous; perineal section; septicæmia.

Retention of urine.—C. 5, R. 2, D. 2. 6 the result of stricture; 2 due to enlarged prostate; 1, a female, ? due to uterine mischief; 1 with hæmaturia; 1 with cystitis; tapping above pubes 1; perineal section 1; the remaining cases treated by catheterism.

Gonorrhœa.—C. 44, R. 5, U. 2. All females. *Complications.*—Œdema of vulva 2; abscess of labium 1; endocervicitis 3; warts 6; soft sore 3; secondary eruption 7; excoriations 9; condylomata 4; hæmorrhoids 1.

Soft sore.—C. 24, R. 7. *Complications.*—Œdema of vulva 2; abscess of labium 1; secondary eruption 4; excoriations 3; condylomata 1; gonorrhœa 8; bubo 6; erythema nodosum 1; in 1, a male, circumcision was performed.

DISEASES OF LOCOMOTORY SYSTEM.

Of hip-joint.—Males 30, females 22. C. 11, R. 34, U. 1, D. 7. Incipient (1st stage) 23; chronic (2nd and 3rd stages) 27; old excision 1; chronic osteo-arthritis 1; hysterical 1; 2 patients were admitted for acute mischief of hip, acute necrosis of upper epiphysis, with temperature of 105°; excision in both cases; fibrous anchylosis in 3; erysipelas developed in 3; measles in 1; scarlatina in 1.

Fatal cases.—Male, æt. 18. Hip disease 3 months; iliac and spinal abscesses; bedsores; free incisions and drainage; diarrhœa; septicæmia; right hemiplegia with aphasia (sudden); dilatation of left pupil; incontinence of urine. P.M.—Caries of hip and spine; tubercular meningitis.

Male, æt. 2. Incipient hip disease 3 weeks, after scarlatina. Aspiration and afterwards free incision antiseptically; death somewhat sudden. P.M.—Abscess of thigh; diphtheria; pleurisy; acute peritonitis; psoas abscess.

Male, æt. 17. Disease of hip 2 years. Aspiration of abscess; excision of joint; femoral and acetabular disease; diarrhœa; vomiting; bedsores; exhaustion. P.M.—Gastro-intestinal catarrh.

Male, æt. 7. Disease of hip 8 months. Patient anæmic and thin; excision; deep-seated pus; necrosis of head; loose acetabular sequestrum; tubercular meningitis. No post-mortem.

Male, æt. 6. Disease of hip 2½ years. Excision 1 year ago. Osteo-myelitis of upper part of femur; optic neuritis; symptoms of tubercular meningitis, with subnormal temperature; discharge from right ear; frequent fits. P.M.—Amyloid liver; tubercular tumour of cerebellum.

Male, æt. 6. Disease of hip 4 years. Large abscess in connection with hip; excision; amyloid liver; ascites; right anasarca; paracentesis abdominis. P.M.—Pelvic cellulitis; acute peritonitis; amyloid disease of liver, kidneys, spleen, stomach, and intestines.

Female, æt. 4. Disease of hip 2½ years; also disease of spine. Died of bronchitis.

Of knee-joint.—Males 45, females 35. C. 35, R. 42, D. 3. Incipient 14; chronic 55; old excision 5; chronic osteo-arthritis 1; loose cartilage 5; syphilitic disease 4; subacute 3; after confinement 1. 1 patient who recovered had erysipelas, pleurisy, empyema, paracentesis thoracis; 4 had erysipelas after operation; 2 of disease, with lengthening of femur; 2 fibrous anchylosis; 1 with tubercular testis, 1 with disease of both knees.

Fatal cases.—1, male, æt. 49. Disease of knee 3 years. Syphilitic; amputation of thigh; abscess in inner head of tibia; whole joint much disorganised; hæmorrhage; erysipelas; sweats. P.M.—Bronchitis; pneumonia; septicæmia; no pathological changes indicating pyæmia.

Male, æt. 4. Disease of knee 2 years, with incipient disease of hip. Convulsions. P.M.—Tubercular meningitis.

Female, æt. 47. Disease of knee 6 weeks. Bedsores; delirium; rigors, with high temperature (105·8°). Died of septicæmia.

Of ankle-joint.—C. 5, R. 7. In 1 there was a large abscess over, and probably connected with, joints, which was opened antiseptically, and patient discharged cured; 1 ? hysterical; 1 gonorrhœal of both ankles; 1 primary of astragalus, which was excised; 1 complete excision of joint.

SUMMARY OF INJURIES.

GENERAL INJURIES.

Burns.—Males 14, females 20. C. 16, R. 3, D. 15. Of face and head 7; of chest 4; of back 4; of abdomen 2; of upper extremity 10; of lower extremity 2; general 5. *Treatment.*—Carron oil 17; olive oil 5; acetic acid and whiting 3; saturated solution of bicarbonate of soda 4; terebine oil 3; Ung. Zinci 2.

Fatal cases.—1 convulsions; 5 shock; 4 collapse; 2 vomiting; 2 delirium; 1 sloughing, convulsions, and exhaustion; 1 exhaustion and suppuration in knee-joint; 1 with shock, delirium, and exhaustion.

Scalds.—Males 20, females 11. C. 25, R. 2, D. 4. Of face and neck 5; of throat and fauces 4; of chest 7; of back 2; of abdomen 6; of upper extremities 2; of lower extremity 5. *Treatment.*—Carron oil 9; olive oil 7; acetic acid and whiting 5; saturated solution of bicarbonate of soda 1; terebine oil 2; Catap. Lini 1; Ung. Zinci 1; almond oil 1. 4 patients not treated, death occurring soon after admission.

Fatal cases.—1 died of variola; 1 of shock and convulsions; 1 of exhaustion 1 of stomatitis.

LOCAL INJURIES.

HEAD.

Scalp wound.—Males 26, females 4. C. 29, D. 1. Exposed bone in 8. *Complications.*—Concussion 3; division of anterior branch of temporal artery by punctured wound 1; injury to back and abdomen 1; erysipelas 1; wound of hand 1; of arm 1; contusion of back and arm 1; general contusions, shock, hæmorrhage from wound 1; old scalp wounds 2.

Fatal case.—Male, æt. 56. Fell through a skylight; large incised wound measuring 10 inches; bone not bare; vessels tied; antiseptic. Four days after admission erysipelas developed, temp. 104·3°, of which patient died.

Concussion.—C. 30, R. 2. *Complications.*—Bleeding from ear 5; convulsions

and collapse 1; ? fracture of frontal bone 1; contusion of head and arm 1; fracture of clavicle 1; ecchymosis of eyelids 1; wound of scalp 1. 1 admitted with bleeding from left ear and rupture of tympanic membrane, and five days after left facial paralysis appeared, and existed time of dismissal. 1, a male, æt. 43, fell from omnibus 20 hours before admission; left facial paralysis; pupils equal; paralysis of left arm. There was a decided improvement in the paralysis of arm, but that of face remained when patient was discharged. 1, a female, æt. 40, was knocked down by cab; bleeding from both ears; old perforation of membrana tympani; involuntary urination; indistinct articulation; left facial paralysis; no improvement in latter when discharged.

Fracture of vault of skull.—C. 2, R. 1, D. 4.

Cases discharged *cured*.—Female, æt. 4. Head squeezed between machinery of a mangle. Partially sensible on admission; triangular depression, about ½ inch in extent and ¼ inch deep, of inferior portion of parietal; no head symptoms; temperature normal.

Male, æt. 3. Fell height of 9 feet. Insensible; vomiting; partial left hemiplegia; temp. 101°. Next day no appearance of paralysis; large fissure felt, extending from 1½ inches above orbital arch directly backwards for ¾ circumference of head. Three weeks after admission spoke for first time distinctly; still some want of control over muscles of deglutition.

Cases discharged *relieved*.—Latter case readmitted for 14 days for inspection.

Fatal cases.—Male, æt. 2. Three days before admission fell and struck head; day after admitted; vomiting and delirium; subsequently symptoms of cerebral irritation and meningitis. Lived 5 days.

Male, æt. 24. Railway accident. Only lived several minutes in ward. P.M.—Antero-posterior fracture from parieto-occipital suture through anterior-inferior angle of parietal bone and squamous part of temporal; blood extravasation pressing on brain; fracture of sternum, ribs, nasal bones, and lower jaw; lacerated wound of scalp, face, arms, and legs.

Male, æt. 46. Fell down flight of steps. Insensible; effusion into left orbit; nasal hæmorrhage; respiration stertorous; pulse 72, collapsing. Depression, size of half-crown, over left side of vault. Lived 1 day. P.M.—Fracture of frontal and parietal bones, extending into orbit; laceration and hæmorrhage into brain substance and lateral ventricles, and outside dura mater; aortic disease.

Male, æt. 66. Fell 16 feet from van. Semiconscious; no paralysis; left pupil contracted; pulse 48; resp. 24; rather stertorous; became quite insensible. Lived 5 hours. P.M.—Scalp wound of occipital region; fracture of vault; laceration of brain substance.

Fracture of base of skull.—C. 4, D. 9.

Cases discharged *cured*.—Male, æt. 14. Fell 20 feet, struck right frontal region. Semiconscious; ecchymosis of eyelids; no paralysis; vomiting; nasal hæmorrhage; pupils equal; temp. 97·4°; pulse 50. Consciousness returned in three days.

Male, æt. 31. Fall of 45 feet. Semiconscious; irritable; bleeding from left

ear and both nostrils; watery discharge from ear. Next day twitching of left side of face; general restlessness, throwing legs about; albuminuria; hæmaturia. Discharged cured in 26 days.

Female, æt. 32. Fell down stairs 23 hours before admission. Bleeding from right ear; conscious, but would not answer questions; flexion of legs; no paralysis; restless. Cured in 21 days.

Male, æt. 37. Trodden upon by horse. Insensible for 3 hours; bleeding from left ear; no paralysis; delirium. Cured in 7 days.

Fatal cases.—Male, æt. 9. Fell height of 10 feet. Insensible; wound of right ear; tumefaction about eyes. P.M.—Fracture of base and vault.

Male, æt. 12. Fall of 8 feet. Insensible; pupils equal, dilated; bleeding from right ear and mouth; no paralysis; vomiting. 2 days after admission symptoms of irritation; flexion of extremities; restless; pulse small and quick; watery fluid from ear; temp. 107° at death. P.M.—Fracture of base, lesser wing of sphenoid, squamous bone; hæmorrhage into crus cerebri; meningitis.

Male, æt. 13. Fell 9 feet. Insensible; restless; no paralysis; pulse 75; dyspnœa; convulsions. P.M.—Fracture of base extending into posterior fossa.

Male, æt. 19. Hit by handle of crane. Unconscious; escape of cerebral matter from wound in frontal region. P.M.—Compound fracture of frontal bone and ethmoid; fracture of base; laceration of brain.

Female, æt. 21. Fall from window. Unconscious; right hemiplegia without facial paralysis, profuse hæmorrhage from left ear, and plentiful discharge of watery fluid. Temperature rose to 107° before death. P.M.—Fracture running through petrous bone and across base.

Male, æt. 29. Fell down shaft. Lived 3 hours. Wound on right side of frontal bone; fracture of base and vertex; fracture of ribs.

Male, æt. 37. Fall down area, height 10 feet. Insensible; bleeding from ears, nose, and mouth. Fracture of base and vertex.

Male, æt. 40. Fall from omnibus. Admitted for concussion and scalp wound. On 6th day left facial paralysis; pupils contracted; hyperæsthesia of left side of face; rigidity of upper extremities; muttering delirium; temperature of both sides of body equal. On 12th day hyperæsthesia of left side; speech incoherent. 20th day violent twitchings; dysphagia. Died on 35th day from exhaustion. P.M.—Fracture of base, extending through occiput, a little to the right of median line, into foramen magnum; softening of clot and brain around and at apex of right frontal lobe, this softening extending into temporo-sphenoidal lobe and base of brain.

INJURIES OF THE CHEST, SPINE, AND PELVIS.

Fracture of ribs.—C. 9, R. 2. 9 due to direct violence; 2 to indirect. *Complications.*—Bronchitis 2; hæmaturia 1; emphysema 1; concussion and general contusions 1; fracture of clavicle and collapse 1.

Rupture of lung.—D. 1. Male, æt. 6, was run over by light cart. Right pneumothorax tapped 10 hours after accident, giving much relief; expectoration

of frothy sputum mixed with blood; 2 days after some vomiting and dyspnœa; 1 week after accident tapped again; some blood withdrawn with aspirator; temp. p.m. averaged 102°. Died on 9th day. P.M.—Hæmato-pneumothorax; pleuritis; collapse of lung.

Fracture of spinal column.—C. 2, D. 4.

Cases discharged *cured.*—Male, æt. 5. Squeezed between two carts. Cyphosis; prominence of 12th dorsal; no paralysis nor spinal irritation. Sayer's splint.

Male, æt. 40. Struck by locomotive. Fracture of spinous process of 9th dorsal; absence of spinal symptoms.

Fatal cases.—Male, æt. 53. Fell 9 feet, striking nape of neck; immediately followed by paralysis of motion and sensation of lower and partially of upper extremities; no loss of consciousness nor power of articulation; dyspnœa. Died next day. P.M.—Fracture of body of 7th cervical, with dislocation forward of neck; hæmorrhage into theca of cord; congestion of lungs and kidneys.

Male, æt. 37. Knocked on back by some heavy pulleys. On admission rigidity of chest muscles; abdominal respiration; lividity; anæsthesia below 2nd rib; retention of urine; pain, but no anæsthesia of arms; paraplegia; delirium. Lived 2 days. P.M.—Fracture of 6th cervical body and laminæ; crushing of cord; extravasation of blood.

Male, æt. 25. Fell height of 40 feet, alighting on head. Lacerated wound of scalp; paralysis of motion of legs and hands; anæsthesia of body below first rib; fixation of chest muscles; lacerated wound of scalp. Died on 3rd day. P.M.—Fracture of body and laminæ of 5th cervical; extravasation into cord and sheath; disorganisation of cord.

Male, æt. 45. Fall of 19 feet. Paralysis of upper and lower extremities; retention of urine. Next day tympanitis; abdominal respiration; anæsthesia below second rib; exhaustion. Lived 2 days. Temperature rose from 102·6° at death to 104·8° one hour afterwards. P.M.—Fracture of body of 6th cervical; displacement forward of neck; disorganisation of cord; pulmonary congestion.

Dislocation of spine.—U. 1, D. 1. 1 a case of 4 months' standing. Prominence of four upper cervical vertebræ; pain on rotation of head; sense of "pins and needles" in left arm; partial paralysis of left hand and right leg. Unrelieved.

Male, æt. 14. Railway accident. Unconscious; wound over right parietal eminence; absence of paralysis. Lived 2 hours. P.M.—Separation between 5th and 6th cervical vertebræ without displacement; extensive laceration of liver.

Fracture of pelvis.—C. 3, D. 1. Male, æt. 16. Fracture of horizontal ramus of pubes. Discharged cured 25th day.

Male, æt. 53. Wheel passed over pelvis. T-shaped fracture, passing in antero-posterior direction through ilium, and from above downwards to ascending ramus of ischium. Cured.

Male, æt. 3. Fall from window. Separation of primary centres of left os innominatum. Cured.

Male, æt. 38. Tree fell upon patient. Shock; hæmatoma of buttock. P.M.—Fracture of pelvis; of ribs, 3rd, 4th, 5th, 6th, and 7th; dislocation of left thigh; pneumonia.

INJURIES OF THE UPPER EXTREMITIES.

Wounds.—C. 11. Laceration of arm 4, 1 of which was followed by peri-articular abscess of elbow and 1 by erysipelas; 1 gunshot wound of palm; lacerated of hand 3; in 2 of these scalp wounds; 1 of finger of 3 weeks' duration; amputation of digit; 2 incised of arm, 1 having erysipelas.

Wounds of artery.—C. 3. 1 incised of palmar arch, ligature of radial at seat of wound; lacerated of palmar arch, pad applied; incised of metacarpal artery of thumb, ligature at wound.

Fracture of humerus (simple).—C. 5, R. 2. Direct violence 4; indirect 3; at upper third 4; at lower third 2; at middle third 1; ecchymosis at seat of injury 3; extravasation 1; synovitis of ankle 1; scalp wound 1.

Fracture of humerus (compound).—C. 7. 1 unconscious on admission, bleeding from nose and right ear, breathing rather stertorous. Discharged cured in 20 days. 1 compound and comminuted; 3 into elbow-joint; 1 arm, much ecchymosed; 4 by direct violence; 3 by indirect; excision of elbow in 1; primary amputation in 2.

INJURIES OF THE LOWER EXTREMITIES.

Dislocation of femur.—C. 2, R. 1. Female, æt. 16. Fell down in street over grating day before admission, thigh-bone thereby forcibly adducted; ? previous hip disease; sciatic dislocation reduced under chloroform; long outside splint applied. Discharged cured in 10 days.

Female, æt. 26. Three years ago slipped down two stairs, twisted hip, but did not fall; was able to replace it herself; dislocation has occurred several times since. On admission there was marked eversion and 2½ inches shortening; trochanter movable, with some crepitation, as if from formation of new joint; head of bone on dorsum ilii; margin and cavity of acetabulum felt external to femoral vessels in groin. A boot with support was given.

Male, æt. 29. Fell height of 11 feet, striking hip; exact position of thigh at time of accident unascertainable; thyroid dislocation; reduction effected without chloroform.

Dislocation of astragalus.—R. 1. Male, æt. 35. Sprained ankle 3 years ago; since accident has not been able to use ankle. Chronic synovial thickening; also some of astragalus and of external malleolus; circumference of joint exceeds opposite by 1¾ inches; rotatory displacement of astragalus outwards.

Fracture of femur.—60. C. 56, R. 4. Simple 54; comminuted 2; compound 4. Of the *simple* fractures 5 were extra-capsular of neck, all due to direct violence, 1 of which was impacted, and of 10 weeks' standing; 3 were intra-capsular, all due to indirect violence, 1 of which was impacted; 2 were spon-

taneous fractures of shaft, 1 being due to ? new growth; the remaining simple fractures were of shaft, 2 being into the knee-joint, 1 greenstick, 1 separation of upper epiphysis, 15 due to direct violence, 30 due to indirect violence.

Comminuted fractures.—C. 2. Both of shaft. 1 T-shaped into knee-joint, and complicated with injury to chest.

Compound fractures.—C. 4. All of shaft. 1 through condyles into knee-joint; large wound; shock; amputation of thigh; antiseptics. 1 with extensive lacerated wound of thigh.

Compound and comminuted.—D. 3. 1 with smashing of thigh; collapse; fracture of pelvis. 1 smash into knee-joint; shock; amputation at hip-joint; transfusion. 1 severe compound comminuted of femur and leg; amputation of hip-joint.

Fracture of tibia.—24. C. 15, R. 9. 11 due to direct violence; 13 to indirect; 16 at lower third; 6 at middle third; 2 at upper third; 1 into ankle-joint.

Fracture of fibula.—46. C. 27, R. 19. 6 due to direct violence; 40 to indirect, all at lower third; 1 with injury to chest; 1 with wound of leg; 4 with fracture of internal malleolus. Compound comminuted fracture treated successfully with carbolic gauze soaked in Tinct. Benzoini co.

Fracture of tibia and fibula.—79. C. 61, R. 14, D. 4. 17 due to direct violence; 62 to indirect; 56 at lower third; 21 at middle third; 2 at upper third.

Fatal cases.—Male, æt. 34. Run over by heavy van. Simple fracture of tibia and fibula; lacerated wound of scrotum, with testis protruding; wound of arm leading to ulna; contusion of left hip; rupture of kidney.

Male, æt. 23. Run over by locomotive. Compound comminuted fracture of tibia and fibula; shock; anæmia; amputation of thigh. Death on 3rd day.

Male, æt. 34. Fell 15 feet. Compound fracture of tibia and fibula; fracture of femur; primary amputation of thigh. Died on 3rd day from exhaustion.

Female, æt. 72. Run over by car. Compound comminuted fracture of leg; shock. Lived 1¼ hours in ward.

Fracture of patella.—C. 12. 8 by indirect violence; 4 by direct; 1 star-shaped.

Traumatic synovitis—

Knee.—C. 16, R. 1. 7 by indirect violence; 10 by direct. In 1 case incision was made into joint on account of suppuration.

Hip.—C. 3. 1 of 2 days' duration. All recovered by rest and long outside splint.

Ankle.—C. 6. All by indirect violence; 1 with ? fracture of fibula.

Special Table I.—*Hernia.*

Inguinal.

No.	Occupation.	Sex.	Age.	Duration.	Duration of strangulation.	Treatment.	Structure.	Result.	Remarks.
1	Cabdriver	M.	60	30 years	14 hours	Enemata and ice locally	Entero-epiplocele	D.	Symptoms of strangulation and obstruction came on after a heavy supper. After enemata bowels were moved and vomiting ceased. P.M.—Sigmoid flexure in sac, with small intestine and omentum, which was congested; *obstruction of large intestine, fæcal;* no ulceration; absence of stricture of rectum; fatty liver and heart; *acute* peritonitis.
2	Single, service	F.	33	10 „	13 days; obstructed	Purgatives	—	C.	Ol. Ricini given freely.
3	Labourer	M.	40	20 „	3 hours	Taxis	—	C.	
4	Fireman	M.	38	14 „	4½ „	„	—	C.	
5	Warehouseman	M.	33	3 weeks	3 „	Taxis; ice	—	C.	
6	Painter	M.	48	9 years	1 day	„	—	C.	
7	Greengrocer	M.	60	54 „	3¾ hours	Ice	—	C.	
8	Labourer	M.	71	1 month	18 „	„	—	C.	Double scrotal hernia.
9	„	M.	18	18 months	4 „	„	—	C.	
10	—	M.	8 mos.	Congenital	4 „	Taxis; ice	—	C.	
11	Carpenter	M.	34	5 years	18 „	Taxis	—	C.	

12	Labourer	M.	56	14 „	4 „	Taxis; ice	—	C.	
13	„	M.	54	3½ „	2 „	Ice	—	C.	
14	Hatter	M.	55	2 „	3 days	Taxis; ice	—	C.	
15	Stoker	M.	45	12 „	24 hours	Sac opened	Entero-epiplocele	C.	Strangulation acute at neck of sac.
16	Labourer	M.	32	Congenital	16 „	„	„	D.	On several occasions had had symptoms of strangulation. Vomiting and exhaustion on admission. Large piece of thickened omentum removed. P.M.—*Acute peritonitis.*
17	Bricklayer	M.	37	20 years	3 days	„	„	C.	Omentum excised; edges of sac invested and sewn together. No elevation of temperature.
18	Frame maker	M.	62	30 „	10 hours	„	„	C.	Scrotal; no omentum removed.
19	Labourer	M.	62	20 „	4 days	„	„	C.	Greater part of sac removed; a collar of sac invaginated.
20	Coalheaver	M.	33	22 „	2 „	„	„	C.	Paracentesis of sac four days before admission, and again previous to operation; light constriction at neck of sac; omentum removed. Fifteen days after operation fæcal fistula formed, which was treated with clamp, giving partial relief.
21	Labourer	M.	57	4 weeks	—	Truss	—	C.	Admitted for truss.
22	—	M.	54	11 years	3 days	Enemata; fotus	—	R.	Obstructed.
23	—	M.	6	14 days	—	Truss	? Enterocele	C.	Irreducible.
						Femoral.			
24	Married	F.	52	1 week	—	Ice	Epiplocele	C.	Symptoms of strangulation before admission; probably intestine has receded and left omentum behind. Spontaneous occlusion of sac by suppuration.

Special Table I.—*Hernia (continued)*.

No.	Occupation.	Sex.	Age.	Duration.	Duration of strangulation.	Treatment.	Structure.	Result.	Remarks.
25	Labourer	M.	23	2 weeks	3 days	Sac opened	? Epiplocele	C.	At operation sac found; ? hernia with inflamed gland.
26	Married	F.	35	1½ years	19 hours	,,	Enterocele	C.	Abscess found in connection with wound.
27	—	F.	53	3 months	3 days	,,	Entero-epiplocele	C.	Constriction at neck of sac; omentum removed.
28	Married	F.	58	10 years	2 ,,	,,	,,	C.	
29	Widow	F.	56	18 ,,	5 ,,	,,	,,	C.	Constriction at saphenous opening; strangulation one year previously.
30	Married	F.	61	?	2 ,,	,,	,,	D.	Sac indurated; adhesions between gut and omentum. P.M.—Surgical kidney; cystitis; uræmia.
31	Beadstead maker	M.	63	18 years	18 hours	Sac unopened	,,	C.	
32	Coachman	M.	62	3 months	8 ,,	,,	—	C.	
33	Labourer	M.	49	10 years	2 days	Sac opened	Entero-epiplocele	C.	Symptoms not acute.
34	—	F.	70	30 ,,	17 hours	,,	,,	C.	Omentum returned to mouth of sac.
35	Butler	M.	62	7 ,,	14 ,,	,,	?	C.	
36	Single	F.	68	? ,,	20 ,,	,,	Entero-epiplocele	D.	Mania. Bowels had not been open for three weeks; intestine much congested; adherent omentum returned; application of stomach-pump for refusal of food; bronchitis; exhaustion. P.M.—Large perirectal abscess, not connected with operation upon hernia, but apparently with long-continued constipation.
37	—	F.	69	5 days	4 days	,,	Enterocele	D.	Intestine gangrenous and ruptured; gut stitched to edges of wound.
38	Married	F.	53	23 years	11 hours	Taxis; ice	—	C.	
39	Traveller	M.	23	1 week	—	Ice	Epiplocele	C.	

40	Labourer	M.	56	4 years	3 days	Sac opened	Entero-epiplocele	D.	Apparent seat of neck rather to the right and above umbilicus; swelling 5 by 4 inches in diameter, surface red, upper part very tender; constant vomiting (? fæcal); pulse small and distress of countenance. Chiefly omentum; intestine purple, coats thickened; omentum, weighing ½ lb., removed with sac. Neck of sac at junction of upper ⅔ with lower ⅓ of swelling, *i.e.* 1½ inches above umbilicus; vomiting continuous after operation, offensive; bronchitis; died somewhat suddenly. P.M.—Peritonitis; bronchitis; hepatic cirrhosis.

SPECIAL TABLE II.—PYÆMIA.

1. Male, æt. 2. Admitted for recent *injury to knee;* acute traumatic synovitis. Child had been running about perfectly well before accident. Seven days after admission, on account of high temperature, an exploratory incision was made on level with upper border of patella; no pus; splint replaced. A fortnight afterwards sinus enlarged, washed out with carbolic solution (1 in 20), and drainage tubes inserted. Discharge from joint became offensive; bagging discovered in popliteal space. Counter-openings; freely syringed out with carbolic solution. May 3rd, five weeks after admission.—*Amputation* of thigh; complete disorganisation of knee-joint, with erosion of cartilage and extensive suppuration. 6th.—Temp. at night 103°; pulse 170; flap partially sloughing; low vitality of stump; discharge ceased; tongue dry and coated; sordes on lips; no rigor. P.M.—*Secondary deposits* in lungs.

2. Female, æt. 10. Fell and struck knee three days before admission; not walked since. When seen there was much tenderness and redness, with tension of integuments of upper third of right leg. Patient's appearance delicate. Temp. 105·4°. Incision made; evacuation of fetid pus. Wound treated with carbolic oiled lint. Delirium. Two days after eruption appeared on trunk and limbs, consisting of minute emboli. Absence of rigors and diarrhœa; pericarditis; albuminuria; splenic tenderness; hepatic enlargement. Delirium continued until death, with temperature averaging 102·8°. P.M.—*Infarcts and abscesses* of integument, spleen, liver, kidneys, intestines, and brain. An abscess in muscular substance of heart. *Acute periostitis* of tibia.

3. Female, æt. 16. Disease of elbow-joint of twelve years' duration; strumous; synovial mischief. Examination under chloroform.—Olecranon and both condyles bare; abscess over insertion of triceps; much granulation tissue and synovial proliferation; no grating; radial articulation intact; thickening of lower end of humerus. *Excision* of elbow-joint; synovial membrane found firmly attached to a worm-eaten subarticular lamella; operation followed by erysipelatous redness of upper arm, and three weeks after by œdema of left lower extremity and effusion into knee-joint. *Articular abscesses* of knee and sterno-clavicular joints. *Metastatic abscesses* over occiput—three—wrist, of finger, and axilla. Constant tremulousness, but no distinct rigor. Profuse sweating. P.M. refused.

4. Female, æt. 33. Admitted Jan. 4th for idiopathic *synovitis of ankle* of four days' duration. ʒiss pus evacuated from joint; no decrease of temperature,

which is 103·8° p.m.; pulse 120; tongue coated and dry. 21st.—Opposite ankle painful and swollen; sweating freely; temp. 103·4°; pulse 120, weak erythema of forehead and eyelid; albuminuria. 23rd.—Delirious. All joints more or less painful. 24th.—Moribund; pulse 140, scarcely perceptible; erythema increased; sordes on tongue; respiration 60; temp. ¼ hour before death 103·2°; no rigors. P.M.—*Articular abscesses* of both knees, both elbows, right ankle, and in connective tissue about uterus.

5. Male, æt. 34. *Disease of knee* for 1½ years. Syphilis ten years ago. Distinct history of primary sore; secondary eruption, thickening of tibiæ, and disease of both testes. Incision made over inner head of tibia and some crumbs of bone removed. Temperature during following fortnight averaging 102°. Counter-openings made and free drainage. Three weeks after admission *amputation of thigh* at lower third. Pus in knee-joint very offensive. Syphilitic disease of arteries. Died on third day after operation; temp. before death 105·2°. P.M.—*Metastatic abscesses* in lungs; syphilitic gummata of spleen.

6. Male, æt. 36. Admitted in December, 1878, for recent *scalp wound:* discharged cured at end of five weeks. Continued to attend as out-patient till readmission, January 29th, 1879; then complained of headache, nausea, and drowsiness, and wound yielded a considerable amount of discharge; drainage tube inserted; delirium at night, temp. 104·2°. 30th.—Temp. a.m. 105·3°; less discharge; *rigor,* temp. 104·4°; skin hot and dry, thirst, nausea; ice to head; blister to nape of neck; calomel gr. 1½ 4tis horis. 31st.—*Rigor,* temp. 104·5°; pain in knees. February 2nd.—Small exfoliation of skull removed, and three more on 3rd; pain across loins; no albumen; temp. p.m. 104°. 5th.—Icterus; *rigor,* temp. 105·5°; *rigor,* temp. 104·6°. Bronchitis with dyspnœa; tongue fissured and dry. Urine sp. gr. 1018, acid, no albumen. *Rigors* on 6th, 7th, and 8th; temp. p.m. averages 104°. 9th.—Commencing bedsore on buttock. Quiniæ gr. xv t. d. s. 12th.—Considerable diarrhœa; abscess of buttock opened; ℥xv of offensive pus; swelling of right ankle; urine and fæces passed involuntarily. 18th.—Died; temp. 101·7°; no rise after death. P.M.—*Metastatic abscesses* in lungs, in subcutaneous tissue of neck, in gluteal region; liver fatty; much serum in ventricles of brain; bare bone in vicinity of wound.

SPECIAL TABLE III.—ERYSIPELAS.

(Developed in Hospital.)

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1. Female, æt. 45. Removal of breast for scirrhus. 13 days after operation. *Treatment.*—Tinct. Ferri Dialys., ♏x, t. d. s. Cured.

2. Female, æt. 41. Removal of breast for cystic sarcoma. 6 days after operation. Lasted 18 days. Cured.

3. Female, æt. 75. Removal of rodent ulcer from face. 4 days after operation. Lasted 9 days. Cured.

4. Male, æt. 50. Removal of hæmorrhoids with clamp and cautery. 5 days after operation. Lasted 18 days. Cured.

5. Male, æt. 15. Acute periostitis of femur. Incision. Duration 11 days. Cured.

6. Female, æt. 15. Necrosis of femur. Developed in connection with old sinus 18 days after admission. Duration 20 days. *Treatment.*—Tinct. Ferri Perchlor., ♏xv, b. d. Relieved.

7. Male, æt. 37. Necrosis of femur. 3 attacks of erysipelas. 19 days after operation. Erysipelas 16 days. Cured.

8. Male, æt. 11. Necrosis of femur. 2 days after operation. Duration 7 days. Cured.

9. Female, æt. 48. Necrosis of tibia. 4 days after operation. Lasted 8 days. Cured.

10. Male, æt. 9. Necrosis of tibia. 38 days after sequestrotomy. Lasted 12 days. Cured.

11. Female, æt. 15. Acute periostitis of tibia. 2 attacks of erysipelas after removal of bone. Duration 3 weeks. Cured.

12. Female, æt. 54. Necrosis of finger. 16 days after amputation. Duration 15 days. Cured.

13. Male, æt. 36. Caries of tarsus. 2 days after Syme's amputation. Duration 25 days. Cured.

14. Female, æt. 31. Caries of tarsus. 3 months after removal of diseased bone. Duration 3 weeks. Cured.

15. Female, æt. 5. Disease of temporo-maxillary joint. 20 days after partial excision of joint. Duration 25 days. Relieved.

16. Female, æt. 12. Disease of elbow. 2 months after excision. Lasted 10 days. Cured.

17. Female, æt. 4. Disease of elbow. Erysipelas in connection with sinuses 3 weeks after admission; subsequent excision. Cured.

18. Female, æt. 21. Disease of wrist. Partial excision, followed on 2nd day by erysipelas. Duration 10 days. Cured.

19. Male, æt. 31. Disease of hip. 2 months after counter-openings. Cured.

20. Male, æt. 4. Disease of hip. 2 days after excision, complicated with scarlatina. Cured.

21. Male, æt. 4. Disease of hip. 10 days after excision. Duration of erysipelas 27 days. Relieved.

22. Female, æt. 15. Disease of knee. 2 months after excision. Lasted 1 month. Cured.

23. Male, æt. 22. Disease of knee. 2 attacks. 5 weeks after excision. Lasted 7 days and 20 days. Cured.

24. Female, æt. 31. Disease of knee. 10 days after excision. Duration 12 days. Relieved.

25. Male, æt. 49. Disease of knee. 3 days after amputation of thigh; septicæmia; pneumonia. Died.

26. Female, æt. 32. Disease of knee; old excision. Day after probing erysipelas appeared. Lasted 4 days. Cured.

27. Male, æt. 6. Tenotomy for club-foot. 16 days after. Cured.

28. Male, æt. 8. Division of lower jaw for contraction after cancrum oris. 3 days after operation. Lasted 8 days. Cured.

29. Male, æt. 40. Incision into suppurating bursa prepatellaris. 20 days after incision. Lasted 10 days. Cured.

30. Male, æt. 57. Division of fistula in ano. Duration 6 days. Cured.

31. Male, æt. 38. Scalp wound. 1 month after admission. Lasted 2 days. Cured.

32. Female, æt. 9. Incision into abscess of leg. 2 days after. Duration 10 days. Cured.

33. Male, æt. 15. Burn of arm. 7 months after admission. Lasted 3 weeks. Relieved.

34. Male, æt. 29. Scald of legs. 6 months after admission. Duration 14 days. Cured.

35. Male, æt. 56. Wound of scalp. 4 days after accident. Duration 5 days. Died.

36. Female, æt. 38. Wound of arm. 3 days after accident. Lasted 21 days. Cured.

37. Female, æt. 29. Wound of arm. 2 days after accident. Lasted 7 days. Cured.

38. Male, æt. 70. Wound of leg. 12 days after accident. Lasted 39 days. Cured.

39. Male, æt. 37. Compound comminuted fracture of leg. 3 months after admission. Duration of erysipelas 15 days. Cured.

40. Male, æt. 49. Abscess of parietes of chest. 1 month after admission. Duration 3 weeks; subsequent empyema. Cured.

41. Male, æt. 15. Old burn of arm and chest. 6 months after admission. Duration 14 days. Cured.

STATISTICAL REPORT

OF

THE OPHTHALMIC DEPARTMENT

FOR THE YEAR 1879.

By A. D. DAVIDSON,
OPHTHALMIC CLINICAL ASSISTANT.

During the year there were 2449 new patients, and an attendance of 21,787. 204 in-patients were admitted, and 236 major operations performed.

Analysis of In-patients admitted during 1879.

Keratitis, heredito-syphilitic	14	Iritis, punctata	1
„ not syphilitic	1	„ traumatic	1
Kerato-cyclitis	3	„ not classed	3
Ulcer of cornea	14	Cataract, senile	28
Hypopyon ulcer	5	„ congenital	2
Leucoma	5	„ lamellar	2
Anterior staphyloma	3	„ traumatic	11
Pannus	1	„ secondary	4
Adherent leucoma	2	Opaque capsule after extraction	1
Anterior synechia	1	Suppuration of vitreous	1
Episcleritis	1	Tumour of choroid	1
Pterygium	1	Retinitis pigmentosa	1
Iritis, syphilitic	4	Detachment of retina	4
„ rheumatic	5	Atrophy of optic nerve	2

Optic neuritis	1
Amblyopia	1
Glaucoma, acute	3
„ subacute	2
„ chronic	5
„ absolute	2
„ secondary	4
Epicanthus	1
Hypertrophy of skin of upper lid	1
Dermoid cyst	1
Lachrymal abscess	1
„ fistula	1
Epiphora	1
Symblepharon	1
Ectropion	1
Necrosis of orbit	1
Hypermetropia	2
Strabismus convergens	5
„ divergens	3
Lupus of upper lid	1
Growth of lid	1
Paralysis of fifth nerve	1
„ sixth nerve	1
Herpes frontales	1
Lost eyes	4
Lime burn	1
Wound of eye (complicated)	5
„ cornea	3
„ eyelids	1
„ sclerotic	1
Rupture of sclerotic	3
Foreign body on iris	1
Readmissions	21
	204

Operations performed during 1879.

Extraction of cataract (eyes)	37
Needle for zonular cataract (eyes)	2
„ congenital „ „	3
„ traumatic „ „	3
„ ripening „	1
„ after extraction	5
Iridotomy after extraction	2
Iridectomy—42 :	
„ for acute glaucoma	1
„ „ subacute „	3
„ „ chronic „	6
„ „ absolute „	3
„ „ secondary „	4
„ „ iritis	3
„ „ traumatic cataract	2
„ preliminary to extraction of cataract	4
„ for removal of thorn on iris	1
„ „ artificial pupil in zonular cataract	2
„ „ „ „ after extraction of cataract	3
Other cases of artificial pupil	10
Division of anterior synechia	11
„ posterior „	1
Removal of prolapsed iris	1
Sclerotomy	2
Division of internal rectus	26
„ external „	5
Advancement of internal rectus	2
„ external „	2

Shortening of palpebral fissure	4
Entropion	2
Ptosis, congenital	1
„ from hypertrophy of skin	1
Paracentesis of cornea	1
„ sclerotic in detached retina	3
Enucleation	38
Pterygium	1
Removal of dermoid cyst	1
Various	22

Many minor operations, chiefly done in the out-patient room, (lachrymal strictnres, meobomian cysts, &c.), not recorded.

Analysis of Cataract Extractions.

The following tables show the chief points of interest in the 59 cases of cataract extractions performed in the hospital by Mr. Nettleship between April 1878, and December 31st, 1879.

The section was made upwards in all except Cases 11, 30, 39, 41, 42, 56. The summit of the incision generally lay a little within the apparent margin of the cornea. Iridectomy was always performed; in Cases 11, 16, 36, 38, 56, a few weeks before the extraction, in all the rest at the same time as the extraction. Usually only a small piece of iris was removed, often not including the ciliary border. In the last 11 cases the pupil was contracted by eserine dropped into the sac a few minutes before the operation. In many of the later cases atropine (gr. iv to ℥j) was used once daily on the third day after extraction and continued for several days, whether iritis were present or not. The dressings were removed on the evening of the operation day, and twice a day afterwards, but unless unfavorable symptoms occurred the eyeball was not looked at until the sixth day.

The word "ordinary" in the seventh column means that the dressing consisted of a piece of dry linen covered by a dry pad of absorbent cotton wool, and knitted bandage. By "antiseptic" is meant the plan practised for a time by Prof. Alfred Graefe, viz. the use of carbolic water shortly before, during, and for several days after the operation, and of com-

presses wetted in a solution of boracic acid and covered with oiled silk. Of thirty-three cases so treated, three were lost by suppuration beginning at the wound within a day or two of extraction, and another (Case 45) by suppuration, beginning as purulent ophthalmia, on the eleventh day, *i.e.* after the "antiseptic" dressing had been discontinued. The cause of the ophthalmia in this case was not discovered. No purulent or granular cases are even admitted into the ward. After these results this plan was abandoned. The patients after extraction were kept in bed for a week. The urine was always examined for albumen and sugar before the operation.

In the column "results" the presence and amount of astigmatism, if any, has been noted. Secondary operations have always been noted if performed. The first forty-six cases, including the thirty-three treated "antiseptically," were for the most part placed in a large ward with the other eye cases. In all the remaining cases the patient was placed for a week after operation in a small room containing only one bed, and kept solely for cataract patients. The use of eserine just before the operation was begun at the same time.

Analysis of Cataract Extractions performed during 1878.

No.	Name.	Sex.	Age.	Anæsthetic.	Vomiting.	Operation and dressing.	Progress of case.	Secondary operation.	Result.
1	J. F. May 9th	M.	82	Ether	—	Extraction of left upward with iridectomy; ordinary	Severe iritis and dense membrane in pupil; very unruly	—	Good result; patient never returned to have glasses.
2	J. S. May 16th	F.	76	„	Slight, just after operation	Ditto; ditto	Slight iritis; atropine 3rd day; prolapse of iris, which was punctured	—	2 months after S = $\frac{20}{100}$ and 6 J. Synechia at inner end of wound.
3	S. E. May 27th	F.	40	„	Vomited when operation was finished, and also during night	Extraction of right upward with iridectomy; ordinary	Iritis with hypopyon 5 weeks after operation; atropine, belladonna fomentations, compress	Needled 2 months after extraction	Patient Welsh, cannot read English; could see to thread needle.
4	J. J. June 14th	F.	65	„	Vomited for several hours after operation	Ditto; ditto	Uninterrupted; atropine 5th day	—	2 months after extraction S = $\frac{20}{100}$ and 6 J.
5	S. E. (same as Case 3) June 21st	F.	40	Ether and chloroform	„	Extraction of left upward with iridectomy; ordinary	Suppuration commenced on 2nd day	—	Enucleation 14 days after extraction.
6	M. S. June 28th	F.	58	Ether	Slight vomiting after operation	Ditto; ditto	Uninterrupted; atropine 6th day	—	1 month after operation S = 14 J.
7	E. A. June 28th	F.	71	„	—	Extraction of right upward with iridectomy; ordinary	Good	Needled 4 months after extraction	6 months after extraction S = $\frac{20}{70}$ and 10 J.; astig. $\frac{1}{20}$.
8	J. J. July 12th	F.	65	„	—	Extraction of left upward with iridectomy; ordinary	—	—	1 month after extraction S = $\frac{20}{100}$ and 6 J.
9	J. D. July 12th	M.	55	„	—	Ditto; ditto	Uninterrupted; atropine 3rd day	—	1 month after operation S = $\frac{20}{70}$ and 4 J.

No.	Name.	Sex.	Age.	Anæsthetic.	Vomiting.	Operation and dressing.	Progress of case.	Secondary operation.	Result.
10	J. G. (suffering from diabetes) July 19th	F.	63	Ether	—	Extraction of left upward with iridectomy; ordinary	Recovery slow; insidious iritis followed with small hypopyon; atropine 3rd day	5 months after extraction, iridectomy	6 months after extraction S = $\frac{12}{200}$ and 16 J. Patient has since died.
11	F. B. Sept. 20th	F.	57	,,	Vomited for 1 hour after operation	Preliminary iridectomy performed 6 months previously downward and inward; extraction of right cataract downward and inward; ordinary	Good recovery; atropine 3rd day	—	2 months after S = $\frac{20}{70}$ and 2 J.
12	L. D. Sept. 20th	M.	69	Ether and chloroform	No vomiting	Extraction of right upward with iridectomy; ordinary	Wound healed slowly	—	2 months after extraction S = $\frac{20}{50}$ and 6 J.
13	A. H. Sept. 20th	F.	69	,,	,,	Extraction of left upward with iridectomy; small escape of vitreous; lens removed with scoop; ordinary	Slight iritis; atropine 3rd day	—	3 months after operation not 20 J. Thin membrane in pupil.
14	M. B. Oct. 18th	F.	74	,,	Slight vomiting at end of operation	Extraction of left upward with iridectomy; antiseptic	Recovery good	—	10 months after operation S = $\frac{30}{70}$ and 6 J.
15	F. L. Oct. 25th	F.	57	Ether	,,	Ditto; ditto	Recovery good	—	1 month after operation S = $\frac{20}{200}$ and 4 J.
16	A. H. (same as Case 13) Nov. 1st	F.	69	,,	No vomiting	Preliminary iridectomy 2 months before; extraction of right upward; antiseptic	Recovery good; atropine 3rd day	—	3 weeks after operation S = $\frac{15}{100}$ and 16 J.
17	L. D. (same as Case 12) Nov. 1st	M.	69	Ether and chloroform	,,	Iridectomy 5 weeks before; extraction upward of left; antiseptic	Wound healed slowly; atropine 3rd day	—	3 weeks after extraction S = $\frac{15}{100}$ and 20 J. Old nebula after ulcer.
18	A. B. Nov. 8th	F.	60	,,	Slight vomiting	Extraction upward of left with iridectomy; antiseptic	Wound healed rather slowly; atropine 10th day	—	17 months after extraction S = $\frac{20}{40}$ and 1 J.
19	E. S. (gouty and irritable) Nov. 8th	M.	56	Ether	No vomiting	Extraction of right upward with iridectomy; loss of vitreous; antiseptic	Prolapse of iris; wound healed slowly; flannel compress; atropine 3rd day	—	9 months after operation S = $\frac{20}{50}$ and 1 J. Detachment of retina downward and outward.

20	F. B. (same as Case 11) Nov. 15th	F.	57	Ether and chloroform	Continued to vomit for about 10 hours after operation	Extraction of left upward with iridectomy; antiseptic	Good recovery	—	1 month after extraction S=$\frac{20}{70}$ and 4 J.
21	W. H. Nov. 29th	M.	60	„	No vomiting	Extraction of left upward with iridectomy; bleeding into a. c.; antiseptic	Wound healed slowly; slight iritis; atropine 3rd day	Iridectomy 4 months after	5 months after operation S=$\frac{12}{200}$ and 18 J. Cannot read.
22	F. R. Dec. 12th	M.	49	Ether	Vomited slightly for 2 hours after operation	Extraction of left upward with iridectomy; antiseptic	Good recovery	—	Discharged for misconduct 10 days after extraction, eye looking perfect.

Cataract Extractions performed during 1879.

23	E. B. Jan. 3rd	F.	66	Ether and chloroform	No vomiting	Extraction of left upward with iridectomy; lens sticky; cortex removed after; antiseptic	Suppuration commencing 16 hours after operation	—	Enucleation 1 week after extraction.
24	J. R. Jan. 3rd	M.	65	„	Retched during operation; vomited for 3 hours after at intervals of about 10 mins.	Extraction upward with iridectomy; cortex fluid; nucleus removed with scoop; small escape of vitreous; antiseptic	Wound healed slowly; 5th day flannel bandage; 3 weeks after operation wound healed but grooved	—	10 weeks after operation S=$\frac{20}{40}$ and 1 J.; astig. $\frac{1}{24}$. Some thin opaque capsule remained.
25	J. G Jan. 24th	M.	78	Chloroform	No vomiting	Extraction of left upward with iridectomy; bleeding into a. c.; some cortex left in pupil; antiseptic	1 week after wound healed some blood in a. c.; 9th day atropine; some iritis	—	7 weeks after operation S=$\frac{20}{50}$ and 10 J.; astig. $\frac{1}{20}$. Thin membrane over lower part of pupil.
26	W. W. Jan. 24th	M.	70	„	„	Extraction of right upward with iridectomy; antiseptic	1 week after operation slight muco-purulent discharge; atropine once a day	—	6 weeks after operation S=$\frac{20}{200}$ and 14 J. Patient was rather weak-minded.
27	P. R. Feb. 7th	F.	55	Ether	„	Extraction of right upward with iridectomy; wound rather small; bleeding into a. c.; no lens matter left; antiseptic	Suppuration commencing 36 hours after operation	—	Enucleation 1 week after extraction.

No.	Name.	Sex.	Age.	Anæsthetic.	Vomiting.	Operation and dressing.	Progress of case.	Secondary operation.	Result.
28	E. S. Feb. 21st	F.	25	Ether	No vomiting	Extraction of right upward with iridectomy; some lens left in; antiseptic	Threatened suppuration 3 days after operation; iritis 14 days after; small hypopyon; atropine; belladonna fomentation and compress used	—	6 weeks after operation S=20 J.
29	P. H. March 7th	M.	72	Ether and chloroform	„	Extraction of right upward with iridectomy; lens very large; antiseptic	Wound healed rather slowly; some opaque capsule in pupil	Capsule torn with needle 3 mos. after	5 months after S=$\frac{2}{7}\frac{0}{0}$ and 1 J.
30	W. C. March 14th	M.	66	Chloroform	„	Traumatic cataract with iritis, following rupture of sclerotic; extraction of right downward; section corneal; antiseptic	Favorable	Iridotomy 3 weeks after	7 weeks after operation pupil closed with membrane; S no better than before operation.
31	E. H. March 28th	M.	76	„	„	Extraction of left upward with iridectomy; cataract over-ripe; incision rather small, and made through a dense arcus; antiseptic	1 week after iritis; atropine 3 daily, increased to every 2 hours, and 3 weeks after operation reduced to 3 daily; pupil closed	2 months after iridotomy	Severe iritis came on 24 hours after iridotomy; suppuration and enucleation 2 weeks after operation.
32	J. T. April 18th	M.	24	Ether and chloroform	Vomited after being put to bed	Extraction of left upward with iridectomy; lens softened; some lens matter left; antiseptic	Atropine commenced on 3rd day	—	1 month after only p. l; fundus cannot be seen, probably from opacity in vitreous.
33	M. D. May 2nd	F.	60	Chloroform	No vomiting	Extraction of left upward with iridectomy; antiseptic	1 week after wound not quite healed; flannel compress; atropine	—	2 months after S=$\frac{2}{3}\frac{0}{0}$ and 1 J.; astig. $\frac{1}{15}$.
34	J. H. May 2nd	M.	76	„	„	Cataract was pricked before operation twice to ripen it; extraction of right upward with iridectomy; antiseptic	1 week after wound slightly gaping; flannel bandage; iritis	—	1 month after pupil much contracted; sight not taken. Discharged for misconduct
35	E. T. May 9th	F.	75	„	„	Extraction of left upward with iridectomy; antiseptic	Slight iritis; atropine used 1 week after operation	—	7 weeks after operation S=$\frac{2}{7}\frac{0}{0}$ and 1 J.

36	E. H. (same as Case 31) May 9th	M.	76	„	„	Preliminary iridectomy performed 2 months previously; right extracted upward; antiseptic	Patient was very restless; suppuration commenced on 3rd day	—	Enucleation 18 days after the extraction.
37	E. S. (same as Case 19) May 9th	M.	53	Ether and chloroform	„	Extraction of left upward with iridectomy; antiseptic	Wound healed rather slowly; compress used	—	3 months after operation S=$\frac{2}{6}\frac{0}{0}$ and 1 J.; astig. $\frac{1}{14}$.
38	E. W. May 16th	M.	26	Ether	—	Cataract following severe plastic iritis; iridectomy previously performed right; Bowman's operation performed, but no lens found; scoop introduced; sclerotic collapsed; antiseptic	Progress favorable; eye remained quiet	—	Sometimes counts fingers at 1 foot.
39	C. W. May 23rd	M.	20	Ether and chloroform	No vomiting	Right shrunken, fluid cataract, with opacity of cornea; downward section; escape of vitreous; eye irritable and unsound; antiseptic	Intraocular hæmorrhage 48 hours after operation	—	Excision 9 days after extraction; sympathetic inflammation of other eye set in 21 days after excision. (Communicated to Clin. Soc., April, 1880.)
40	M. P. May 30th	F.	66	None	—	Extraction of left upward with iridectomy; much bleeding into a. c.; section very corneal; antiseptic	1 week after a.c. not re-formed; flannel bandage; atropine used once a day, and increased to four times a day	—	3 months after operation S=$\frac{2}{5}\frac{0}{0}$ and 4 J.; astig. $\frac{1}{3}\frac{}{0}$.
41	T. A. May 30th	M.	49	Ether	No vomiting	Traumatic cataract from blow; extraction downwards; antiseptic	Uninterrupted	—	Patient does not know letters of alphabet; tells time by watch 6 weeks after operation.
42	J. E. June 6th	M.	36	„	„	Traumatic cataract, wound with piece of iron 2 years previously; extraction of right, downward section; lens partly removed by scoop; small escape of vitreous; antiseptic	4 days after operation chemosis and wound yellow; severe iritis; 10 days after pupil blocked with lymph; much pain	—	14 days after enucleation.
43	A. J. June 10th	F.	64	None	—	Extraction upward with iridectomy; some bleeding into a. c.; antiseptic	1 week after slight iritis; flannel bandage; wound weak	—	5 weeks after operation S=$\frac{1}{3}\frac{5}{0}\frac{}{0}$ and 14 J. Patient Welsh, cannot read English, and speaks it badly.

No.	Name.	Sex.	Age.	Anæsthetic.	Vomiting.	Operation and dressing.	Progress of case.	Secondary operation.	Result.
44	J. L. June 10th	M.	73	Chloroform	No vomiting	Extraction of left upward with iridectomy; much soft matter got out after; antiseptic	Wound healed slowly; flannel bandage 1 week after	—	1 month after operation S=$\frac{20}{60}$ and 1 J.; astig. $\frac{1}{15}$.
45	E. W. June 20th	F.	57	None	—	Extraction of left upward with iridectomy; antiseptic	Slight iritis; progress otherwise went on well until 11 days after operation, when patient got purulent ophthalmia from some undiscovered source, going on to suppuration	—	Enucleation 3 weeks after operation.
46	M. B. July 8th	F.	65	„	—	Ditto; ditto	Uninterrupted	—	6 weeks after operation S=$\frac{20}{70}$ and 1 J.
47	W. C. Aug. 7th	M.	75	„	—	Extraction of left upward with iridectomy; pupil contracted by eserine before operation; ordinary	Wound healed slowly; serious iritis; atropine commenced on 3rd day	—	5 months after cannot count fingers; requires artificial pupil; no secondary operation.
48	A. A. Aug. 22nd	F.	67	Chloroform	No vomiting	Pupil contracted with eserine before operation; extraction of left upward with iridectomy; ordinary	Atropine on 3rd day; wound healed slowly; thin membrane in pupil	7 months after operation needled	8 months after extraction S=$\frac{10}{200}$ and 10 J.
49	G. R. Sept. 19th	M.	64	None	—	Pupil contracted with eserine before operation; extraction of right upward with iridectomy; ordinary	Healed well; only very slight iritis, which left one single synechia; atropine on 3rd day	—	8 months after extraction S=$\frac{20}{70}$ and 6 J. Anterior synechia at each end of wound; require needle.
50	G. R. Sept. 26th	F.	64	„	—	Pupil contracted with eserine before operation; extraction of right upward with iridectomy; some soft matter left; ordinary	Had some lachrymation commencing some hours after operation, and lasting a few days; atropine twice a day on 3rd day	2 months after operation needled	3 months after extraction S=$\frac{20}{40}$ and 6 J.; astig. $\frac{1}{24}$. Anterior synechia at outer end of wound.
51	J. K. Oct. 3rd	M.	61	„	—	Eserine before operation; extraction upward of right with iridectomy; escape of vitreous; flannel bandage	Atropine commenced on 3rd day; some membrane in pupil, and unabsorbed lens remained	3 months after operation needled	6 months after extraction S=$\frac{20}{200}$ and 6 J. Synechia at each end of wound; still some membrane in pupil.

52	G. C. Oct. 10th	M.	70	Ether	No vomiting	Pupil contracted with eserine before operation; extraction of left upward with iridectomy; ordinary	Atropine commenced on 3rd day; progress uninterrupted	—	3 months after operation S = $\frac{20}{40}$ and 1 J.; astig. $\frac{1}{30}$.
53	J. A. Oct. 17th	M.	60	Ether and chloroform	„	Pupil contracted with eserine before operation; extraction of right upward with iridectomy; escape of vitreous; lens removed with scoop; flannel bandage	Atropine commenced on 3rd day; progress uninterrupted	—	2 months after operation S = $\frac{20}{50}$ and 1 J.; astig. $\frac{1}{36}$. Some membrane in pupil.
54	M. A. Oct. 24th	F.	74	Chloroform	Slight vomiting after operation	Eserine before operation; extraction of right upward with iridectomy; ordinary	Atropine on 3rd day; recovery good	—	2 months after S = $\frac{20}{50}$ and and 6 J.
55	H. L. Oct. 24th	M.	58	„	No vomiting	Eserine before operation; left extracted upward with iridectomy; ordinary	Atropine on 3rd day; recovery good.	—	4 weeks after operation S = $\frac{20}{40}$ and 1 J.; astig. $\frac{1}{30}$.
56	S. D. Nov. 7th	M.	57	Ether and chloroform	„	Preliminary iridectomy 2 months previously downward and inward; extraction of left cataract downward and inward; escape of fluid vitreous; flannel bandage	Wound healed without any complication	—	Cataract was secondary to sympathetic iritis; 1 month after operation no p. 1 and T −.
57	G. W. Nov. 14th	F.	26	Ether	Was sick at intervals for 8 hours after operation	Extraction of left upward with iridectomy; ordinary	Had some iritis; iris was drawn back by synechiæ; atropine on 3rd day	—	Before operation bad p. 1; 1 month after extraction nearly counts fingers.
58	T. M. Dec. 5th	M.	68	Ether and chloroform	No vomiting	Eserine before operation; extraction of left upward with iridectomy; ordinary	Atropine on 3rd day; some thin speckly capsule in pupil.	2 months after needled	3 months after extraction S = $\frac{15}{100}$ and 6 J. Still thin membrane in pupil.
59	H. O. Dec. 12th	F.	54	„	Vomited just as bandage was being put on; had eaten a biscuit	Eserine before operation; extraction of left upward with iridectomy; ordinary	Atropine on 3rd day; recovery good	—	3 months after operation S = $\frac{20}{100}$ and 1 J.

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St. Thomas's Hospital

MEDICAL SCHOOL.

CALENDAR

FOR THE

YEAR COMMENCING OCTOBER 1ST, 1880.



1880 & 1881.

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Full information on all matters connected with the Medical School, Prizes, &c., will be obtained on application to the Secretary, Dr. Gillespie, *at the Hospital, Albert Embankment, S.E.*

A list of Lodgings suitable for Students has been recently revised, and is kept in the Secretary's Office. Information as to terms, accommodation, &c., can be obtained on application. This list has been especially prepared, with a view to the convenience of gentlemen newly arriving in town, without definite arrangements having been made for their accommodation in lodgings or otherwise.

Several Medical Practitioners residing in the neighbourhood receive students for residence and supervision.

There is a Restaurant in the Medical School where Students can take their meals at moderate charges.

St. Thomas's Hospital

MEDICAL AND SURGICAL COLLEGE.

The WINTER SESSION 1880 – 81 will commence on FRIDAY, OCTOBER 1st, and terminate on MARCH 31st.

The SUMMER SESSION will begin on MONDAY, MAY 2nd, and terminate on JULY 31st.

An Introductory Address will be given by the DEAN, Dr. W. M. ORD, in one of the Theatres of the Hospital on Friday, October 1st., at 3 P.M., after which the various Departments of the Hospital and School will be thrown open in working order for the inspection of Visitors.

Refreshments will be provided in the Library.

The Annual dinner, in which all old and present Students are invited to join, will take place the same evening in the Governors' Hall, at 6 for 6.30.

The Annual Distribution of Prizes will be made in June.

ALL accounts agree in attributing the origin of St. Thomas's Hospital to circumstances more or less accidental. In Stow's "Survey of London," we find "that a fire happened in the Borough of Southwark in the year 1207, which destroying the Priory of St. Mary Overie, the Canons erected an Hospital hard by for the celebration of divine service, till their Monastery could be rebuilt; which they soon after accomplishing, Peter de Rupibus, or de la Roche, Bishop of Winchester, for the greater convenience of air and water, removed the said Hospital in the year 1215, and erected it in a place where Richard, Prior of Bermondsey, but two years before had built an Almonry or Almshouse for the reception of indigent children and necessitous Proselytes, and

having dedicated the same to St. Thomas the Apostle, endowed it with land to the amount of three hundred and forty-three pounds per annum."

It is difficult to say whether it is owing to deficiency of historical accuracy in Maitland (from whom the above is quoted), or to excess of orthodoxy, that he names St. Thomas *the Apostle*. Certain it is, however, that Peter de la Roche denominated its foundation "The Spital of St. Thomas the Martyr of Canterbury," in honour of Thomas à Becket whose shrine in Canterbury Cathedral was already drawing what Chaucer aptly terms "shoals" of pilgrims down the "Old Kent Road," and past the very door of the Hospital to the Tabard Inn.

The next fact of importance seems to be the cession of the Hospital by the Prior of Bermondsey to a President, Master and Brethren, in 1482; unless we note an altercation in 1252 between the then Archbishop of Canterbury and the Bishop of Winchester for the patronage of it. This ended in favour of the latter, whose palace hard by survives in name, and partly in structure to the present day, as Winchester House. From an estimate formed about the later of these dates, it appears there were a master and brethren, and three lay-sisters, residing in the Hospital; forty beds were made up for poor, infirm and impotent people, all of whom had victuals and firing allowed to them.

From this time, Golding truly says, nothing of importance occurred either in the government or revenues of St. Thomas's Hospital until the 26th year of Henry VIII., when an estimate was formed of the latter, which were found to amount to the annual sum of £347. 3s. 6d. It is not to be wondered at that we have so little to record during these early times; for the "Hospitum" dependent on the rich Abbey of Bermondsey was, as the name strictly implies, more an Almshouse than a Hospital. No doubt the sick found their way into it with other distressed persons; and no doubt some learned monk, using the shelter and leisure of the cloister for researches in alchemy and medicine, was told off to minister to their

physical necessities. The brotherhood of the Rosy Cross, to which Gower, now lying in the neighbouring church, belonged, was intimately connected with the early quest after Arcana and Elixirs of Life which represented the science of the time.

In the year 1535, Henry VIII. was excommunicated by Pope Paul III., and, declaring himself head of the church, proceeded to dissolve the Catholic houses, whose large revenues went to the Crown. There seem to have been 645 monasteries and abbeys thus treated, twenty-eight of which had abbots with seats in Parliament, ninety colleges and free chapels, and 110 hospitals of various descriptions. It is certainly in favour of the sweeping change that so able and honest a man as Sir Richard Gresham, the Lord Mayor of London, should have put his hand to the following petition to the King:

"Most redowted, puysant, and noble Prince * * * *—nere and within the cytie of London be iij hospitalls or spytells commonly called Seynt Georges Spytell, Seynt Barthilmews Spytell, and Seynt Thomas Spytell, and the new Abbey of Tower Hill, founded of good devotion by auncient fathers, and endowed with great possessions and rents only for the reliefe, comforte, and helping of the poore and impotent people lying in every street, offending every clene persone passing by the way with theyre fylthy and nasty savors. Wherefore may it please your merciful goodness, enclyned to pytie and compassion, for the reliffe of Xts very images, created to his own similitude, to order by your high authoritie, as supreme head of this Church of England, or otherwise by your sage discretion, that your mayer of your cytie of London, and his brethren the aldermen for the time being, shall and may from henceforth have the order, disposition, rule and governaunce both of all the lands, tenements, and revenues apperteynyng and belongyn to the said Hospitals, governors of them, and of the ministers which be or shall be withyn any of them, and then your grace shall facilie perceyve that where now a small number of Chanons, Priests, and Monkes be founde for theyr own profitt only, and not for the common

utilitie of the realme, a great number of poore, needy, syke and indugent persones shall be refreshed, maynteyned, and comforted; and also healed and cured of their infermities frankly and freely by physicions, surgeons and potycaries, which shall have stipende and salarie only for that purpose; so that all impotent persones not able to labour shall be releved, and all sturdy beggars not willing to labour shall be punished."

St. Thomas's Hospital being claimed by the King as Church property, was surrendered to him by Nicholas Buckland, the then master, on the 15th July, 1538. It was called St. Thomas à Becket's Spittil. Its yearly revenue was estimated at £266. 17s. 6d., and an annual pension of 5s. 8d. was payable by the master, and another of 2s. 1d. by the curate, to the Archdeacon of Surrey. Soon after the seizure, we find that the Citizens of London purchased of the Crown some of its landed estates, producing about £160 yearly. The want of the hospital thus destroyed was felt immediately. Wounded soldiers from the army in France, and the sick poor in general were without provision or help, and Henry proposed granting to the City the Mansion house of St Bartholomew's, the dissolved house of Grey Friars adjoining, and the unoccupied fabric of St. Thomas's Hospital. The latter was intended by Henry to receive the name of the Hospital of the Holy Trinity, and to be allotted exclusively to lame, wounded, and diseased soldiers. The monastery of Grey Friars was to be for the education and maintenance of fatherless children and those of poor parents. The intentions of Henry were overtaken by death, but not before he had conferred upon the Citizens of London the Hospital of St Bartholomew's and also that of Bethlem for lunatics.

It is from the death of Henry that the connection of St. Thomas's Hospital with the city of London appears to begin. To meet the needs of the sick and destitute who had before depended on the charity of the religious houses, a Committee or Board of Inquiry was instituted by the Citizens, with the sanction of King Edward. About 2,100 souls were reported as fit recipients of relief, as fatherless children and invalids,

or as "Idle rogues of both sexes who were levying contributions on public sympathy by feigned tales of sorrow." It was proposed to establish receptacles for each class in the unoccupied monastic buildings, and a pecuniary contribution was set on foot to complete the work. They bought the dissolved house of the Franciscans or Grey Friars near St. Bartholomew's Hospital, and also by charter from the King received a grant as follows: "That the said mayor, commonalty, and citizens, and their successors, may have and enjoy all the franchises, immunities, and privileges whatever, which any Archbishop of Canterbury, and which the said Charles late Duke of Suffolk, or any master, brethren, or sisters of the late Hospital of St. Thomas in Southwark aforesaid; or any Abbot of the said monastery of St. Saviour, Saint Mary Bermondsey, next Southwark aforesaid, or any prior and convent of the priory of St. Mary Overie, ever had or enjoyed, or which we hold or enjoy, or our most dear father Henry the VIIIth, late King of England, or had enjoyed, or ought to have, hold, and enjoy the same: and that none of our heirs or successors may intermeddle with this our grant."

The Greyfriars became Christ's Hospital, and the Southwark site the Hospital of the Holy Trinity or St. Thomas's. The Lord Mayor and certain citizens then met on the 6th of October, 1552, and constituted themselves by royal permission governors of the hospitals, and almoners of the money collected. The Hospital of the Holy Trinity they named, in compliment to Edward, the "King's Hospital," and ordained it to receive 260 "wounded soldiers, blind, maimed, sick, and helpless objects."

They also directed that 380 children should be received into Christ's Hospital.

To complete the scheme, the old palace of Bridewell, in Blackfriars, where the Emperor Charles V. had lodged in 1522, when on a visit to Henry VIII., and where subsequently Wolsey had lived, was granted to the City by Edward as a house of correction for dissolute persons and idle apprentices, and for the temporary maintenance of distressed vagrants.

Lastly, the lands lately belonging to the Palace of the Savoy were conferred jointly on the three foundations; and a month only before the end of Edward's short reign, he incorporated by a second charter bearing date the 6th of June, 1553, the Lord Mayor and commonalty of the City of London in succession as perpetual governors of Saint Bartholomew's, Christ's, Bridewell, and the king's Hospital (which last received the name of ST. THOMAS THE APOSTLE), and secured to them the possession of all the estates and revenues appertaining to them by previous deeds of gift. So were the royal hospitals founded.

In 1557 the laws were framed and printed under the name of "The Order of the Hospitals of K. Henry the VIII and K. Edward the VI, viz. St. Bartholomew's, Christ's, Bridewell, St. Thomas's. By the Maior, Cominaltie, and Citizens of London," &c.

Successive bequests and donations continued to augment the property of the charities, but during the reigns of Elizabeth, James I., Charles I., and the Protectorate, there appear few facts to note. In the abstract of the charter of confirmation granted to the City in 1663 by Charles II. on his restoration, we find the charter of Edward acknowledged and confirmed. The Great Fire of London in 1666 injured St. Thomas's in its revenues only; and a fire in Southwark anno 1676, ceased, "as if by divine interposition," at the Hospital, probably a strong and isolated block of building. Shortly after this, however, it was found necessary to rebuild the fabric, and in 1693 subscriptions were opened for this purpose. A long list of benefactions in this and the succeeding year, amounting in all to £37,769. 3s., is given by Golding, who especially singles out Sir Robert Clayton for eulogium. The statue then erected to him, and still extant was originally dated 1701, but this was altered on his death to 1714. He was the founder of the old square in which it stood, replacing what Golding terms "a low swampy structure of the monastic order." In 1707, Mr. Guy, founder of the neighbouring hospital, erected three wards at his own

charge. In 1717, the back block of buildings adjoining Guy's Hospital was added. With the exception of the two large blocks forming the Borough frontage, the north wing erected in 1833, and the south wing in 1839, the fabric seems to have remained unchanged until its purchase by the railway. In the centre of the front quadrangle stood the brass statue of King Edward, by Scheemakers, erected first in 1737, in pursuance of the will of Charles Joye, some time treasurer of the Hospital. It now stands in the grounds of the New Hospital.

It is a matter of more difficulty to trace the early history of the medical school in connection with the hospital. For the facts which follow we are indebted to the late R. G. Whitfield, Esq., who, from the long period during which his family had been associated with this foundation, was perhaps more qualified to speak than any other person.

The earliest mention in the hospital books of an apprentice is on December 31st, 1561. It is not until 1702 that a law is met with precluding pupils or surgeons from dissecting the dead body without permission from the treasurer.

In 1703 the grand committee resolved that no surgeon should have more than three "Cubbs," a term altered in 1758 to that of "Dressers." Besides these there were also apprentices to the surgeons of the hospital, and ordinary pupils. The first mention of lectures occurs soon after the appointment of Wm. Cheselden, in 1718. These he at first gave at his own house, but afterwards by permission in the hospital. They were on anatomy and surgery. In 1723 a regular registry was ordered to be kept by the apothecary, of pupils entering to surgical practice. In 1725, Guy's Hospital was opened for the reception of patients. In 1751 the assistant-physician was allowed to take two pupils for his own benefit. In 1768, an additional surgeon, Mr. Joseph Else, was elected to read lectures to the pupils.

The students of Guy's Hospital had by courtesy been allowed to attend the operations, and a similar favour admitted the St. Thomas's men to those at Guy's. But on

the 8th November, 1768, it was formally resolved that the pupils of each hospital have the liberty of attending not only the operations, but surgical practice, and the money to be divided between the six surgeons and two apothecaries. Hence the appellation of the "United Hospital;" an amalgamation never extended beyond the surgical practice.

To Mr Else is due the foundation of a regular anatomical school. Mr. Cline, who in 1781 was appointed to read lectures conjointly with Mr. Else, was mainly instrumental in bringing it to its greatest celebrity. At Mr. Else's death, Mr. Cline purchased the collection of preparations made by him and Mr. Girle, a former surgeon, which are now in the hospital museum, and became sole lecturer on anatomy. In 1788 he also became surgeon to the hospital. Mr., afterwards Sir Astley, Cooper was apprenticed to Mr. Cline in 1784, and before his election, as one of the surgeons to Guy's Hospital in 1800, was joint lecturer with his teacher on anatomy and surgery. They both added materially to the pathological museum.

In 1812 Mr. Henry Cline was elected surgeon to St. Thomas's Hospital on his father's resignation, and carried on the anatomical lectures conjointly with Astley Cooper. In 1813 a new anatomical theatre and museum were built, the hospital giving £3000 for the purpose, and the two lecturers £1000 each. In 1815 Mr. Benj. Travers, an apprentice of Astley Cooper's at Guy's, was elected surgeon, according to the established rule which gave the vacancy to the senior apprentice of either institution. Mr. Travers joined in the lectures, devoting his attention specially to ophthalmic surgery. In 1820 Mr. Joseph Henry Green was elected surgeon on the death of his cousin Mr. Hy. Cline, having been apprenticed to his uncle Mr. Cline in the year 1809. From 1820 to 1825 he lectured with Astley Cooper. At this period all the branches of medical study,—viz., medicine, chemistry, materia medica, midwifery, botany, and physiology —were lectured on at Guy's Hospital, and no physician of St. Thomas's was allowed to share them.

In 1824 Sir A. Cooper resigned the surgical chair, and Mr. C. Aston Key, his apprentice and nephew by marriage, joined Mr. Green in the office. Mr. Fred Tyrrell, standing in exactly the same relation to Cooper, received permission to lecture on diseases of the eye. In the following year Cooper showed signs of cerebral disturbance, and the family desired that his nephew, Mr. Bransby Cooper, should be his successor. But the claims of Mr. John Flint South were considered superior, and he was appointed. From this cause the "United Hospitals" were severed, and a complete school set up in both. The majority of the students clung to Guy's, where the prestige of the great Sir Astley was still strong; and St. Thomas's school began to sink. The establishment of the Aldersgate Street private school under Tyrrell and Lawrence materially aided in this declension, as did also the secession of Dr. Elliotson to the newly-established University College, and the foundation of a fresh school at King's College, where for a time the surgical lectures were given by Mr. Joseph Henry Green, although a surgeon of St. Thomas's.

Owing to the unprosperous state of affairs in 1842, the Governors came forward to reorganize the school, and the aid of Mr. R. D. Grainger, whose popularity had been established in the Webb Street private school, was obtained. Mr. Joseph H. Green also rejoined the school; and Dr. Marshall Hall, Dr. Hodgkin, Dr. Martin Barry, Dr. Gregory, and Mr. Benjamin Travers contributed to its efficiency. This state of affairs continued until 1858, when the Governors gave back the management, and its attendant risks, into the hands of the lecturers.

For some years it was maintained with difficulty, and at much self-sacrifice on the part of the staff, during what may be termed a transitional period, in the hope, now realized, of its once more developing into an institution worthy of its old traditionary glories.

From its foundation down to the year 1862, the Hospital occupied the original site near London Bridge, but in that year the property was sold for the extension of the railway

accommodation, and the establishment temporarily removed to the Surrey Gardens, where it was carried on till the Summer of 1871. In 1868 the first stone of the new Hospital at Westminster Bridge was laid by the Queen, and the completed building was opened by Her Majesty in 1871. In September the patients were first admitted into the new Hospital, and the Medical School was opened on October the 2nd.

The original Hospital latterly contained 500 beds. The present building contains in all 572 beds. It consists of six blocks appropriated to the reception of patients; with one for the administrative and other offices, and one for the Medical School. The Ward blocks, though connected by corridors, stand apart, so as to afford free exposure in all directions. The Wards, with the exception of four which are placed on the ground floor, occupy the first, second, and third floors. Generally, each Ward affords accommodation for 28 beds, which are placed against the piers between the windows, so as to secure thorough ventilation. In a small Ward annexed to each larger Ward, there are two beds for cases requiring special care or treatment.

Of the whole accommodation of the Hospital, about 180 beds are appropriated to ordinary Medical cases, and 230 to ordinary Surgical cases. There are also special Wards for the reception of diseases peculiar to women; for diseases of the eye; for venereal affections; and for children under six years of age. In one of the blocks, separated from the rest of the establishment, there are Wards for infectious diseases.

The space provided for each bed in the ordinary Wards is upwards of 1,800 cubic feet, and in the block appropriated to infectious diseases, about 2,500 cubic feet.

The Out-patients' Department is extensive and well arranged, and every facility is afforded for the treatment of different forms of Medical and Surgical casualties and diseases.

During the twelve months ending December 31st, 1879, the number of patients admitted into the Hospital amounted

to 3,317. In the same period, 18,138 Out-patients have been treated, and in the Maternity department 2,024 women have been attended at their own homes. Casualties, to the number of 43,466 attendances, were treated during the same period.

The School buildings stand at the southern extremity of the Hospital, from which they are quite isolated. They contain ample accommodation for large classes of students.

The Museum is one of the most important in the metropolis. There is a large Reading Room and Library for the use of the pupils.

In addition to these are the various Lecture Rooms, the Dissecting Rooms, the Laboratories for Practical Physiology and for Practical Chemistry, and the Post-mortem Rooms.

The Committee of the "NIGHTINGALE FUND" have arrangements with the authorities of St. Thomas's for educating Women as Hospital Nurses. On the satisfactory completion of one year's training, they will be required to enter into service as Nurses in the Metropolitan or Provincial Hospitals or Infirmaries. A limited number of gentlewomen can be admitted under special agreements to this course of training, with a view to qualify themselves for superior appointments.

The Regulations as to the admission of Candidates may be obtained by writing to Henry Bonham Carter, Esq., the Secretary of the Nightingale Fund, 91, Gloucester Terrace, Hyde Park, London, W.

Institutions requiring trained Superintendents or Nurses are requested to apply to the Secretary of the Nightingale Fund, or to Mrs. W. W. Wardroper, the Matron of the Hospital, giving as long previous notice as possible of their requirements.

Women wishing to be trained should, whenever it is possible, make personal application to Mrs. Wardroper, to be entered on the list of Candidates, for admission as vacancies occur.

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OF

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AND

MEDICAL SCHOOL.

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John Croft, Esq. .. .. 61, Brook St., Grosvenor Sq., W.
William Mac Cormac, Esq. .. .. 13, Harley Street, W.
Francis Mason, Esq. .. .. 5, Brook St., Grosvenor Sq., W.

OPHTHALMIC SURGEON.

E. Nettleship, Esq. .. .. 4, Wimpole Street, W.

ASSISTANT PHYSICIANS.

J. F. Payne, M.D. Oxon. .. .. .. 78, Wimpole Street, W.
W. S. Greenfield, M.D. Lond. .. .. 15, Palace Road, S.E.
S. Sharkey, M.B. Oxon. .. .. .. 16, Palace Road, S.E.

ASSISTANT OBSTETRIC PHYSICIAN.

R. Cory, M.A., M.D. Cantab. .. .. 14, Palace Road, S.E.

ASSISTANT SURGEONS.

W. W. Wagstaffe, Esq. .. .. .. 2, Palace Road, S.E.
A. O. Mac Kellar, Esq. .. .. .. St. Thomas's Hospital, S.E.
H. H. Clutton, Esq. .. .. 16, Palace Road, S.E.
W. Anderson, Esq. .. .. 93, St. George's Square, S.W.

MEDICAL OFFICERS, &c.—*Continued.*

DENTAL SURGEON.

J. W. Elliott, Esq. .. .. 4, Finsbury Square, E.C.

ASSISTANT DENTAL SURGEON.

W. G. Ranger, Esq. .. .. 4, Finsbury Square, E.C.

RESIDENT ASSISTANT PHYSICIAN.

G. Gulliver, M.B. .. .. St. Thomas's Hospital, S.E.

RESIDENT ASSISTANT SURGEON.

B. Pitts, Esq. .. .. St. Thomas's Hospital, S.E.

ANÆSTHETIST.

S. Osborn, Esq. .. .. 10, Maddox Street, W.

ELECTRICIAN.

W. J. Kilner, B.A., M.B. .. .. .. 104, Ladbroke Grove Road, W.

APOTHECARY.

S. Plowman, Esq. .. .. St. Thomas's Hospital, S.E.

DEMONSTRATORS OF MORBID ANATOMY.

R. W. Reid, M.D. .. .. 10, Nottingham Place, W.
S. J. Sharkey, M.B. .. .. 16, Palace Road, S.E.

ANALYTICAL CHEMIST.

Albert J. Bernays, Ph.D. .. .. .. Acre House, Brixton Rise, S.W.

LECTURERS

A.W. Bennett, Esq., M.A., B.Sc., F.L.S. 6, Park Village East, Regent's Park, N.W.
Alfred Carpenter, M.D. .. .. .. Croydon.
T. Cranstoun Charles, M.D. .. .. St. Thomas's Hospital, S.E.
George Rainey, Esq. .. .. 1, Western Road, Gresham Park, Brixton, S.W.
R. W. Reid, M.D. .. .. 10, Nottingham Place, W.
Charles Stewart, Esq., F.L.S. .. .. 25, Albert Square, Clapham Road, S.W.
H. Rayner, M.D. .. .. Hanwell, W.

REGISTRARS.

Medical—G. Gulliver, M.B. *Surgical*—H. P. Potter, Esq.

CURATOR OF THE MUSEUM.
C. Stewart, Esq., F.L.S.

LIBRARIAN.
E. H. Denison, Esq.

SECRETARY.
J. W. Gillespie, M.D.
25, Porchester Terrace, W.

DEAN OF THE SCHOOL.
W. M. Ord, M.D.
7 Brook Street, W.

LECTURES AND DEMONSTRATIONS.

Medicine	Dr. Bristowe. Dr. Ord.
Clinical Medicine	Dr. Bristowe. Dr. Stone. Dr. Ord. Dr. Harley.
Do. Obstetric	Dr. Gervis.
Surgery	Mr. Sydney Jones. Mr. Mac Cormac.
Clinical Surgery	Mr. S. Jones. Mr. Croft. Mr. Mac Cormac. Mr. Mason.
Descriptive Anatomy	Mr. Mason. Mr. W. W. Wagstaffe.
General Anatomy and Physiology	Dr. John Harley. Dr. Sharkey.
Practical Physiology	Dr. T. C. Charles.
Ophthalmic Surgery	Mr. Nettleship.
Chemistry and Practical Chemistry	Dr. Bernays.
Midwifery, and the Diseases of Women and Children	Dr. Gervis.
Physics and Natural Philosophy	Dr. Stone.
Materia Medica, and Therapeutics	Dr. Stone.
Forensic Medicine	Dr. Payne and Dr. Cory.
Pathological Anatomy	Dr. Payne and Dr. Greenfield.
Botany	Mr. A. W. Bennett.
Comparative Anatomy	Mr. C. Stewart.
Mental Diseases	Dr. H. Rayner.
State Medicine	Dr. A. Carpenter.

TEACHERS OF PRACTICAL SUBJECTS & DEMONSTRATORS.

Practical Chemistry	Dr. Bernays.
Practical and Manipulative Surgery	Mr. Croft. Mr. Mac Kellar.
Demonstrations in Anatomy	Mr. Wagstaffe. Dr. Reid, Mr. Taylor, Mr. Haslam, and Assistants.
Demonstrations in Microscopical Anatomy	Mr. Rainey.
Demonstrations of Morbid Anatomy	Dr. Reid and Dr. Sharkey.
Demonstrations in Physiology *Demonstrations in Practical Physiology*	Mr. Hutton.
Diseases of the Eye	Mr. Nettleship.
Diseases of the Skin	Dr. Payne.
Diseases of the Throat	Dr. Greenfield.
Diseases of the Ear	Mr. Clutton.
Diseases of the Teeth	Mr. J. W. Elliott. Mr. W. G. Ranger.

TIMES OF ATTENDANCE OF THE PHYSICIANS AND SURGEONS IN THE WARDS.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Dr. BRISTOWE	—	2	—	—	2	—
Dr. STONE	2	—	—	2	—	—
Dr. ORD	2	—	—	2	—	—
Dr. HARLEY	—	2	—	—	2	—
Dr. GERVIS	2	—	—	2	—	—
Mr. SYDNEY JONES	—	2	—	—	2	—
Mr. CROFT	2	—	—	2	—	—
Mr. MAC CORMAC	2	—	—	2	—	—
Mr. MASON	—	2	—	—	2	—
Mr. NETTLESHIP	2	—	—	2	—	—

TIMES OF ATTENDANCE OF THE ASSISTANT-PHYSICIANS AND ASSISTANT-SURGEONS ON THE OUT-PATIENTS.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Dr. PAYNE	—	12.30	—	—	12.30	—
Dr. GREENFIELD	12.30	—	—	12.30	—	—
Dr. SHARKEY	—	—	12.30	—	—	12.30
Dr. CORY	—	—	1.30	—	—	—
Mr. WAGSTAFFE	—	—	—	—	—	—
Mr. MAC KELLAR	12.30	—	—	12.30	—	—
Mr. CLUTTON	—	12.30	—	—	12.30	—
Mr. ANDERSON	—	—	12.30	—	—	12.30

TIMES OF ATTENDANCE ON THE OUT-PATIENT SPECIAL DEPARTMENTS. (See p. 21.)

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Dr. GERVIS (Diseases of Women)	—	—	—	—	12.30	—
Mr. NETTLESHIP (Diseases of Eye)	1.30	1.30	1.30	1.30	1.30	—
Dr. PAYNE (Diseases of Skin)	—	—	—	12.30	—	—
Dr. GREENFIELD (Dis. of Throat)	—	12.30	—	—	—	—
Mr. CLUTTON (Diseases of Ear)	12.30	—	—	—	—	—
Dr. CORY (Diseases of Children)	—	—	—	—	—	12.30
Mr. ELLIOTT / Mr. RANGER (Diseases of Teeth)	—	10	—	—	10	—
Dr. CORY (Vaccination)	—	—	11.30	—	—	—

DAYS AND HOURS OF ATTENDANCE ON LECTURES AND DEMONSTRATIONS.

WINTER SESSION.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Descriptive and Surgical Anatomy ..	9	9	9	9	9	—
Anatomical Demonstrations*	10—4	10—4	10—4	10—4	10—4	10—2
Chemistry	—	10	—	10	10	—
Physics	—	—	—	—	—	12
Physiology	—	4	4	—	4	—
Physiological Demonstrations	11.30	—	11.30	—	11.30	—
Medicine ..... { Oct. 1st to Dec. 31st	4	—	—	4	4	—
Medicine ..... { Jan. 1st to Mar. 31st	9	—	—	9	—	9
Surgery ..... { Oct. 1st to Dec. 31st	9	—	—	9	9	—
Surgery ..... { Jan. 1st to Mar. 31st	4	—	—	4	4	—
Practical and Manipulative Surgery	—	9	—	—	—	—
Pathological Anatomy	—	4	4	—	—	$11\frac{1}{2}$–$1\frac{1}{2}$

Demonstrations of Morbid Anatomy 2 p.m. daily.

SUMMER SESSION.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Materia Medica	9	—	9	—	9	—
Forensic Medicine	—	9	—	9	—	9
Botany	—	10	10	—	—	10
Practical Chemistry	10—12	—	—	10—12	10—12	—
Comparative Anatomy	12	—	—	12	—	—
Practical Physiology	—	12.30	12.30	—	12.30	—
Mental Diseases	—	—	—	—	12	—
Midwifery	4	4	—	4	4	—
State Medicine	—	—	4	—	—	—
Ophthalmic Surgery	—	9	—	—	—	—
Practical and Manipulative Surgery	—	4	—	—	4	—

Demonstrations of Morbid Anatomy 2 p.m. daily.

The times of delivery of the Clinical Lectures are arranged, in accordance with other work, in the course of the Session.

* The Dissecting Room is open to the Students from 9 a.m. till 5 p.m.

SURGICAL OPERATIONS are performed on Wednesdays and Saturdays at 1.30 p.m., except in cases of emergency.

In-Patients are admitted daily at Half-past 11 o'clock.

Out-Patients with Diseases of the Skin are seen by Dr. PAYNE, on Thursdays at Half-past 12 o'clock.

Diseases of Women and Children occurring amongst *Out-Patients* are treated on Fridays by Dr. GERVIS, and on Wednesdays by Dr. CORY, at Half-past 12 o'clock.

Children under 7 years of age are also seen by Dr. CORY, on Saturdays at Half-past 12 o'clock.

Ophthalmic cases are seen as Out-patients by Mr. NETTLESHIP, at 1.30 daily, except Saturdays; and the Operations are performed on Fridays at 2 o'clock.

Out-Patients with Diseases of the Ear are seen by Mr. CLUTTON, on Mondays at Half-past 12 o'clock; and Diseases of the Throat occurring amongst the *Out-Patients* are treated on Tuesdays by Dr. GREENFIELD at the same hour.

Instruction in *Dental* Surgery is given by Mr. ELLIOTT and Mr. RANGER on Tuesdays and Fridays, at 10 o'clock.

Practical Instruction in the administration of anæsthetics will be given by Mr. OSBORN.

Post-Mortem Examinations by Dr. REID, and Dr. SHARKEY, and Pathological Demonstrations, daily, at 2 o'clock p.m.

The Medical and Surgical *Casual Patients* are seen by the Resident Assistant-Physician, the Resident Assistant-Surgeon, the House-Surgeons, Assistant House-Surgeons and Dressers, at 12 o'clock daily.

In addition to the Clinical instruction given in the Wards and the Out-Patients' Rooms by the Medical and Surgical Officers, Lectures on Clinical Medicine and Surgery are delivered weekly during both the Winter and Summer Sessions by the Physicians and Surgeons to the Hospital; a Clinical lecture and Ophthalmoscopic demonstration are given, and a class for instruction in Diseases of the Eye is held by the Ophthalmic Surgeon, each once a week.

Practical instruction in Vaccination is given by Dr. CORY once a week.

St. Thomas's Hospital is now recognised as a Local Vaccination Station, and Dr. CORY is authorised to give certificates of instruction in Vaccination according to the requirements of the Local Government Board. Fee One Guinea.

SUGGESTIONS TO STUDENTS.

All gentlemen who intend to obtain the Licence of the Royal College of Physicians of London, the Diploma of the Royal College of Surgeons of England, or the Licence of the Society of Apothecaries, must, in order to be able to register their attendance upon Hospital practice or lectures, possess the certificate in Arts granted by one of the bodies whose certificates are recognised by the General Medical Council. Gentlemen who intend graduating in the University of London should pass the Matriculation Examination, and, if possible, the Preliminary Scientific Examination also (see p. 26), before beginning their strictly Medical Studies.

A list of the Licensing Bodies whose certificates are recognised by the Medical Council, may be obtained by a written application addressed to the Registrar, 315, Oxford Street, London, or from the Secretary at the Hospital.

Students when entering must produce their certificates of Preliminary Examination, in order that the commencement of Professional Education may be registered at the Branch Council for England by the Secretary, as the four years of study required will date from such registration.

Students are advised to enter at the commencement of the Winter or Summer Sessions, unless time be an object; in the latter case a student may enter at any time, and the four years required before qualifying will count from such entrance.

The period during which he must attend the Medical and Surgical Practice of a recognised Hospital, and attend the courses of Lectures which are required, varies according to the licences or diplomas for which he is a candidate; but all needful information can at once be obtained from the Secretary, Dr. GILLESPIE.

All the Licensing Bodies require each candidate to pass at least two Examinations. The Student may present himself for the first of these at the termination of his second year of study, and for the final one at the end of his fourth year.

No Student is obliged to remain at the Hospital more than three years, provided he has obtained the required certificates of attendance upon lectures made compulsory by the respective licensing bodies. He must, however, in the event of leaving the Hospital, be engaged during the fourth year in the acquisition of professional knowledge elsewhere, unless he have completed a recognised period of study before coming to the Hospital.

Students are recommended not to avail themselves of the permission, as it is during this latter period of their curriculum that, having fewer lectures to attend, they can better devote themselves to the study of Disease in the Wards of the Hospital.

All Students are likewise strongly advised to use every effort to obtain the junior appointments open to them, and especially those of Clinical Clerk and Dresser, House Physician, and House Surgeon. These appointments are now accessible to Students of the Hospital without payment, and offer opportunities for obtaining practical professional knowledge, the value of which it is impossible to estimate too highly.

Students are recommended to attend the different compulsory courses of Lectures, &c., in the following order.

FIRST YEAR.

Winter Session.—Anatomy, Dissections, Physiology, Chemistry.

Summer Session.—Materia Medica, Botany, Practical Physiology, Practical Chemistry, Clinical Surgery.

N.B.—Two Summer Courses of Clinical Surgery being required, Students remaining only three years must take them in their first and second Summer Sessions, but those remaining the full time should attend them in their second and third years.

SECOND YEAR.

Winter Session.—Anatomy, Physiology, Dissections, Clinical Medicine and Surgery.

Summer Session.—Midwifery, Forensic Medicine, Clinical Medicine and Surgery.

N.B.—Comparative Anatomy is required for the Fellowship of the Royal College of Surgeons, but ALL *Students are advised to attend it during their second Summer Session.*

THIRD YEAR.

Winter Session.—Medicine, Surgery, Pathological Anatomy, Practical Surgery, Clinical Medicine and Surgery.

N.B.—Two Courses of Lectures on Medicine are required for the Licence of the Apothecaries' Society, and the second Course should be attended in the fourth year, but Students remaining only three years may take the First Course in their second year.

In addition to the above, students are advised, during their first Winter Session, to attend the Lectures on Physics and Natural Philosophy; in their third Summer Session, to attend the extra course of Practical and Manipulative Surgery; the course of Ophthalmic Surgery, and instruction in the examination of the Eye; and the Lectures on Mental Disease, and on State Medicine.

They are also strongly recommended to devote, during the whole period of their attendance at the Hospital, as much time as they can spare from other engagements, to the study of Practical Medicine and Surgery in the wards and in the out-patients' rooms.

FEES FOR ATTENDANCE ON THE LECTURES

AND ON THE

PRACTICE OF THE HOSPITAL.

PERPETUAL TICKETS.

Admitting to Hospital Practice and Lectures for an unlimited period.

The Perpetual Fee to Hospital Practice and Lectures may be paid in several ways:

1st. One Hundred and Twenty-five Pounds paid on entrance;

2nd. One Hundred and Thirty pounds in two payments, £70 on entrance, and £60 at the beginning of the next year;

3rd. Payment by three instalments, viz., of £60 at the beginning of the first year, £50 at the beginning of the second year, and £30 at the beginning of the third year.

Gentlemen entering at St. Thomas's in the second year of their Studentship pay £65 for that year; £25 for the third year; or upon paying £85 on entrance, they will become Perpetual Students. Students entering in their third year pay £40; for the next year £20, or one payment of £55 on entrance will entitle them to be Perpetual Students.

The Fee for attendance on the *general* subjects required of Students in Dental Surgery, is for the two years, £55, or by instalments, £50 for the first year, and £10 for the second year. If certificates for *Dental* practice are also required, the special fee for that subject (page 25) has to be paid.

Regularly qualified Medical Practitioners are admitted to the Hospital practice, and to the Lectures and Library, on payment of a fee of £12. 10*s.* for unlimited attendance; but are not entitled to receive certificates for such attendance.

All privileges in respect of Hospital attendance are granted subject to the approval of the Governors, and Students must conform to the regulations of the Hospital and Medical School, on which understanding alone cards of attendance are granted.

EXTRA CHARGES.

Students attending the Classes of Practical Chemistry and Practical Physiology are required to pay One Guinea

and a half for each Class, as a contribution towards the cost of instruments supplied, and of materials used by them.

Students attending the Class of Practical Physiology should at once provide themselves with Microscopes.

Each Student attending the Class of Pathological Anatomy, will be required to pay Half-a-Guinea for reagents and necessary apparatus.

Students Dissecting pay for the parts they dissect at fixed rates, which are notified in the Library.

The Clinical Clerks must provide themselves with a Stethoscope and Registering Clinical Thermometer. The Dressers are required to have a Registering Clinical Thermometer, a Pocket Case of Instruments, and a Case of Silver Catheters.

Each Student wishing to make use of the Library will be required to pay One Guinea for the whole period of his Studies at the Hospital.

The different Courses of Lectures, or the Hospital Practice, may also be attended separately on the following terms:

For the Medical and Surgical Practice, including Clinical Lectures and the Special Departments.

Three months	£15	Twelve months	£40
Six ditto	£26	Perpetual	£55
Nine ditto	£35		

Dental Practice, 1 year 2 Gs., Perpetual 3 Gs.
Midwifery Practice, 5 Gs.

For Lectures and Demonstrations.	1 *Course.*	*Perpetual.*
Medicine, Surgery, Physiology, Anatomy, Chemistry each	7 Gs.	10 Gs.
Midwifery	5 „	6 „
Materia Medica, Botany, Physics, Forensic Medicine, General Pathology, and Comparative Anaty. each	4 „	5 „
Mental Diseases, Ophthalmic Surgery, State Medicine each	2 „	3 „
* Practical Chemistry, Practical Surgery, Practical Physiology, Pathological Anatomy .. .. .. each	6 „	—

Dissections, three months 4 Gs., six months 6 Gs., Perpetual 10 Gs.

Operative Surgery—A voluntary class will be formed by Messrs. MacKellar and Clutton during the Summer, for Gentlemen who wish to prepare for the Fellowship or other Examinations. This course will not include Operations on the Eye-ball. Fee, £5 5*s*.

Operative Surgery of the Eye.—A voluntary class will be formed by Mr. Nettleship during the Summer, in connection with the preceding course. Fee, £1 1*s*. This course may also be taken separately, either in Summer or Winter. Fee, £2 2*s*.

Instruction in Pharmacy and Pharmaceutical Manipulation, to meet the requirements of the Royal Colleges of Physicians and Surgeons, and of the Society of Apothecaries, is given in the Dispensary of the Hospital by the Apothecary, Mr. S. Plowman. The fee for this course of instruction is 5 Guineas for three months. Application to be made to the Secretary, Dr. Gillespie.

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* These amounts do not include the extra charges in the Practical Courses for Materials Instruments, &c.

UNIVERSITY OF LONDON

MATRICULATION, PRELIMINARY, SCIENTIFIC, AND FIRST M.B. CLASSES.

MATRICULATION EXAMINATION.

Classes in the following subjects will commence in October for the January Examination, and in March for the **June**, and be continued as follows:

Chemistry	Dr. BERNAYS	Mon. and Fri. at 12.
English Language, History and Geography	Dr. MAYBURY	Tuesdays, Thursdays, Fridays at 11.30.
French and German	A. VON WATZDORF ..	Mon. and Thurs., 2 30.
Greek and Latin	Dr. MAYBURY	Tuesdays, Thursdays, and Fridays, 10.30.
Mathematics and Natural Philosophy	A. LE SUEUR, B.A. ..	Tuesdays, 3.0; Saturdays, 10.30.

Fee for the whole Course, *Ten Guineas*; arrangements can be made to attend one or more Courses only.

PRELIMINARY SCIENTIFIC EXAMINATION.

Special Classes in the subjects required for the Preliminary Scientific Examination at the University of London, will be held from October to January, and January to July, and will include all the subjects required as follows:

Botany	A. W. BENNETT, M.A., B.Sc. Lond., &c.	Wednesdays, 11 to 12.
Chemistry (Inorganic)	A. J. BERNAYS, Ph.D., &c.	Tuesdays, 11.
Do. (Practical)	Do. do.	Fridays, 11.
Mechanical and Natural Philosophy	W. H. STONE, M.B. Oxon.	Sat. 12, Oct. to Jan.; Friday 3, Jan. to July.
Zoology	C. STEWART, M.R.C.S., &c.	Sats, 10½ from Oct. to Mar.; 11 f. May to July

The Fee charged to Students of the Hospital for instruction in the above is* .. .. *Six Guineas.*

To others, inclusive of Practical Chemistry and Chemicals .. .. *Twelve Guineas.*

Fee for any single subject .. .. *Three Guineas.*

* Instruction in Practical Chemistry is necessary for this Examination. This, so far as Students of the Hospital are concerned, is held to be given in the course of Practical Chemistry attended by all Students in their first Summer, the requirements of the University being specially regarded in this Course, but Students requiring a Second Course of Practical Chemistry, are charged .. .. *A Guinea and a-half for Chemicals.*

FIRST M.B. EXAMINATION.

Special Classes in the subjects required for this Examination are held by the different Lecturers on those Subjects, from January to July.

Anatomy	R. W. REID, M.D.	Mondays, 1 to 2.
Materia Medica ..	W. H. STONE, M.B. Oxon ..	Wednesdays, 2 to 3.
	S. PLOWMAN, Esq.	Tuesdays, 2.30.

Organic Chemistry	A. J. Bernays, Ph.D., &c. ..	Wednesdays, 12.
Do. Analysis	Do. do. ..	Saturday 10.
Physiology	Mr. Hutton	Tuesdays, 10.

Fee to Students of the Hospital inclusive of Organic Analysis and Chemicals* .. .. .. *Nine Guineas.*
To others ditto .. .. *Twelve Guineas.*
Fee for any Single Subject .. .. *Three Guineas.*

* Instruction and Practice in Organic Analysis is essential for this Examination.

N.B.—Private Classes are held for the Second M.B. Examination.

SCHOLARSHIPS, PRIZES, APPOINTMENTS, AND HONORARY DISTINCTIONS.

OPEN SCHOLARSHIPS IN NATURAL SCIENCE.

As an inducement to the study of Natural Science before the commencement of the strictly Medical Course, two Scholarships, of the value of £100 and £60 respectively, are awarded annually, after an examination in Physics, Chemistry, and either Botany or Zoology, at the option of Candidates. The Examinations for these Scholarships will be held in the beginning of October each year, the subjects being the same as those for honours in the Preliminary Scientific Examination of the London University, viz.: Botany, Zoology, Inorganic Chemistry (including Practical Chemistry), and Physics or Natural Philosophy. These Scholarships are open to all Students who have passed a recognised Preliminary Examination in Arts, and have not yet attended Lectures on Anatomy and Physiology of the first year, without any condition as to their becoming Students of the Hospital, except in the case of successful Candidates, who must enter at once as Perpetual Pupils. Chemistry and Physics shall be compulsory subjects for this Examination, and Candidates must take up one of the other subjects at their option. The Examination will be conducted by means of written papers and practical work.

THE WILLIAM TITE SCHOLARSHIP.

This Scholarship, founded by the late Sir W. Tite, C.B., M.P., F.R.S., and endowed with £1,000 Consols, producing £30 per Annum, is awarded each year to the Student placed highest in the 1st Class List in the examinations at the end of the first Winter Session. Preference, in case of equality between Students, is to be given to the son of a medical man, and more particularly of one who has been educated at St. Thomas's Hospital or is in Practice in Bath.

THE MUSGROVE SCHOLARSHIP.

This Scholarship, founded by Sir John Musgrove, Bart., the President of the Hospital, and endowed with £1,400 Consols, producing 40 Guineas per Annum, is awarded biennially to the Student who shall take the highest place in the 1st Class List in the examinations at the end of the Second Winter Session. It is tenable for two years, provided the holder obtains a place in the 1st Class in the subsequent Examinations.

A COLLEGE SCHOLARSHIP.

A Scholarship, of the value of 40 Guineas, also tenable for two years, will be given every second year, alternately with the Musgrove Scholarship, and on similar conditions, to the Student placed highest in the 1st Class List, in the examinations at the end of the second Winter Session.

Gentlemen obtaining these Scholarships are not precluded from receiving any of the Prizes awarded at the subsequent periodical examinations.

PRIZES.

The following Scholarships, Prizes, and Medals, will be offered for Competition during the year 1880–1881:—

TWO OPEN SCHOLARSHIPS IN NATURAL SCIENCE of the value of £100 and £60 respectively, at Entrance.

AT THE END OF FIRST YEAR.

Winter.

1st. ..	The William Tite Scholarship	£30.
2nd. ..	College Prize	£20.
3rd. ..	Ditto	£10.

Summer.

1st. ..	College Prize	£15.
2nd. ..	Ditto	£10.
3rd. ..	Ditto	£5.

SECOND YEAR.

Winter.

1st. ..	The Musgrove Scholarship	£42.
2nd. ..	College Prize	£20.
3rd. ..	Ditto	£10.

Summer.

1st. ..	College Prize	£15.
2nd. ..	Ditto	£10.
3rd. ..	Ditto	£5.

THIRD YEAR.

Winter.

1st. ..	College Prize	£20.
2nd. ..	Ditto	£15.
3rd. ..	Ditto	£10.

Students of each year are classed according to their respective merits in the examinations, and those in the *first* class in each year receive Certificates of Honour, and a preference in the selection for Hospital Appointments.

In addition there are awarded—

THE CHESELDEN MEDAL, *Annually.*
THE MEAD MEDAL, *do.*
THE SOLLY MEDAL AND PRIZE, *Biennially.*
THE GRAINGER TESTIMONIAL PRIZE, *do.*
THE TREASURER'S GOLD MEDAL, *Annually.*

The CHESELDEN MEDAL, founded by the late GEORGE VAUGHAN, Esq., is annually awarded to the Fourth Year's Student who most distinguishes himself in a practical Examination in Surgery and Surgical Anatomy.

The MEAD MEDAL, founded by Mr. and Mrs. NEWMAN SMITH, is awarded annually, to a Fourth Year's Student, in respect of a special Practical Examination in Medicine, Pathology and Hygeine.

The Solly Medal, together with a Prize in Money, will be awarded biennially. Those Students are eligible to compete who shall be of from three to six years' standing. The award is made for the best series of Reports of Surgical cases coming under the Students personal observation in the Wards, not, however, to exceed ten in number. Preference is given, merit in other respects being equal, to Reports illustrated by the author's drawings, and short Clinical Remarks must accompany each Report. The next award will be made at the end of 1881–82, papers to be sent in before April 1st, 1882.

The Grainger Testimonial Prize, of the value of Twenty Pounds, is awarded biennially to Students who shall be of from three to six years' standing, for the best Physiological Essay, to be illustrated by preparations and dissections. Competitors for this Prize must be Medical Students of St. Thomas's Hospital, and on the day of sending in their Essays, Dissections, and Preparations, shall have completed the Second, and not more than the sixth year of their medical studies. The next award will be made in 1882, papers to be sent in before October 1st, 1882.

The Treasurer's Gold Medal for General Proficiency and Good Conduct, is awarded to the Student who has passed through the whole of his four years' pupilage in the most meritorious manner.

Two House Physicians and Two Assistant House Physicians, Two House Surgeons and Two Assistant House Surgeons, and a Resident Accoucheur, are selected from Gentlemen who have obtained their professional diplomas; they hold office for three or six months. The Assistant House Physicians and House Surgeons are non-resident, but the other Officers, together with the Dressers and Obstetric Clerks, are provided with Rooms and Commons during their period of attendance in the Hospital, free of expense.

An Ophthalmic Clinical Assistant, chosen from Qualified Students who have worked satisfactorily in the Ophthalmic Department, is appointed for six months with a Salary at the rate of £50 per annum; the appointment is renewable for a limited period.

Four Surgical Ward Clerks, each holding office for six months, are appointed twice a year.

Clinical Clerks, and Dressers, to In-Patients are selected to the number of at least 100 each year. They are chosen from amongst the most eligible pupils. Clinical Clerks, and Dressers, for the Out-Patients are also appointed to the number of at least 80 to 100 each year.

All Students have the opportunity afforded them of being engaged in the performance of practical duties in connection with the Medical, Surgical, Obstetrical, Ophthalmic, and Pathological Departments of the Hospital.

Two Hospital Registrars, at an annual Salary of £100 each, are appointed in each year. Preference will be given to Gentlemen who have been distinguished for merit, and have completed their studies in the School. The payment of the Registrars is subject to the presentation of a Report upon the Practice of the Hospital, and to such Report being regarded as satisfactory by the Medical Officers to whom it shall have been referred.

Two or more Students are selected from those who have completed their Second Winter Session, to act as Assistants in the Physiological Laboratory.

Two or more Students are selected from those who have completed their Second Winter Session, to act as Assistants in the Dissecting Room. They receive Certificates of Honour according to merit.

Prosectors are appointed in the early part of the Winter Session, and Prizes are awarded to the best Dissectors at the termination of the Session.

Students are likewise appointed to act as Assistants to the Demonstrators of Pathological Anatomy in the Post-mortem Room.

Obstetric Clerks, who reside and have Commons in the Hospital, are appointed in rotation. Each holds office for a fortnight, and Certificates of Honour are awarded to those Gentlemen who have satisfactorily attended Sixty Maternity cases.

Students have access, with the permission of the Officers under whose superintendence they are placed, to the Museums of Human and Comparative Anatomy and Pathology—of Materia Medica—of Botany— and of Chemistry and Mineralogy—and to the Laboratories of Practical Physiology and Practical Chemistry; also to the Library, which contains a large collection of works of reference and modern text-books, on payment of a small Fee for perpetual admission.

THE MUSEUM OF HUMAN AND COMPARATIVE ANATOMY AND PATHOLOGY.

Curator.—Mr. C. STEWART.

Among the earliest contributors to this Museum were Mr. Cline, Sir A. Cooper, Mr. Travers, and Mr. Tyrrell.

The Printed Catalogue of the Museum consists of three octavo volumes: in the first volume, edited by Mr. John F. South, are described the preparations of Healthy Human, Microscopical, and Comparative Anatomy; and the 2nd and 3rd volumes, edited by Mr. Sydney Jones, contain descriptions of the specimens illustrative of Pathological Anatomy.

The COLLECTION of HUMAN ANATOMY consists of a Physiological and a Pathological Department: the former contains, besides wax models and casts, a large number of dissected Preparations, illustrating the Organs of Locomotion and Sense; the Nervous System; the Digestive, Respiratory, and Urinary Apparatus; the Vascular System, the Organs of Reproduction, and the Tissues.

The Pathological Division is very rich, containing above 3000 Specimens, arranged in thirty-seven Sections, as follows:

SECT.
A. Injuries of Bone: Fractures.
B. Injuries of Joints: Dislocations.
C. Diseases of Bone.
D. Diseases of Joints.
E. Diseases of the Spinal Column.
F. Injuries and Diseases of the Muscular System.
G. Injuries and Diseases of the Eye.
H. Injuries and Diseases of the Ear.
I. Injuries and Diseases of the Nose, Antrum, &c.
K. Injuries and Diseases of the Skin and Subcutaneous Cellular Tissue.
L. Injuries of the Skull.
M. Injuries of the Spine.
N. Injuries and Diseases of the Nervous System.
O. Injuries and Diseases of Mouth, Fauces, Pharynx, and the Œsophagus.
P. Injuries and Diseases of the Stomach.
Q. Injuries and Diseases of the Intestines and Peritoneum.
R. Intussusception, Internal Strangulation, and Hernia.
S. Injuries and Diseases of the Liver.
T. Diseases of the Pancreas and Salivary Glands.
U. Injuries and Diseases of the Spleen.
V. Diseases of Thyroid, Thymus, and Suprarenal Capsules.

SECT.
W. Injuries and Diseases of the Respiratory Apparatus.
X. Injuries and Diseases of the Heart and Pericardium.
Y. Injuries and Diseases of Arteries and Veins.
Z. Diseases of Lymphatic and Lacteal Vessels and Glands.
AA. Injuries and Diseases of the Kidneys, and Ureters.
BB. Injuries and Diseases of the Bladder.
CC. Diseases of the Prostate Gland and Vesiculæ Seminales, Urinary and Prostatic Calculi.
DD. Injuries and Diseases of the Penis and Urethra.
EE. Injuries and Diseases of the Testicles and Scrotum.
FF. Diseases of the Ovaries and Fallopian Tubes.
GG. Injuries and Diseases of the Uterus, Vagina, and external organs.
HH. Diseases and displacements of the Ovum.
II. Diseases of the Breast.
KK. Tumours and other allied Morbid Growths.
LL. Malformations.
MM. Wax Models and Casts.

Bones, Joints, &c.—Amongst the specimens illustrating Injuries of Bones and Joints, are nearly all those described and figured in Sir A. Cooper's Treatise on 'Dislocations and Fractures of the Joints,' and in Cooper's and Travers's 'Surgical Essays.'

This section has been recently much enriched by numerous specimens of gunshot injuries, presented by Mr. Mac Cormac, chiefly fractures from bullet and shell wounds obtained from cases under his treatment during the Franco-German War.

Sir A. Cooper's preparations, illustrating repair after fracture, are contained in this Section.

Eye.—This Section has been arranged by Mr. Dixon, and contains specimens described and figured by Sir A. Cooper, Mr. Travers, and Mr. Saunders.

Skin.—Several Tumours are contained in this Section, as well as, amongst others, that horny growth, ten inches in length, removed from a man's forehead by Sir A. Cooper.

Head, Spine, Nervous System.—Showing all kinds of Injuries to the Skull; Spinal Injuries, which have been subjected to operation by Cline, Tyrrell, and South, as well as every variety, frequent and rare, of disease of the Nervous System.

Intestines and Peritoneum.—Travers's Preparations, illustrating 'The Process of Nature in repairing Injuries of the Intestines,' are contained in this Section. There are also Specimens illustrating the Morbid Anatomy of Fever, &c.

Hernia.—This Section contains nearly all the Preparations figured and described in 'Cooper's Hernia.' Besides the more common varieties of Hernia, there are Specimens of Mesenteric, Mesocolic, Vesical, Thyroideal, Ischiatic, Perineal, and Phrenic Hernia.

Liver.—Besides every variety of Liver Disease, this Section contains a large number of Biliary Calculi.

Respiratory and Vascular Systems.—Amongst these Preparations are two Specimens, showing ligature of the Abdominal Aorta; one of them the case of Sir A. Cooper; the other that of Mr. John F. South. There are also Specimens of spontaneous obliteration of the Aorta.

The Preparations illustrative of Travers's experiments on Arteries and Veins are in the collection.

There are also very interesting Specimens of Diseased Heart, described by Dr. Wells and Dr. Elliotson.

Kidneys.—Described and arranged by Mr. Simon.

Urinary Calculi.—250 in number—analysed by Mr. Heisch and Dr. Bernays.

Testes.—Most of the preparations figured in Sir A. Cooper's work 'On the Testis,' are contained in this Section.

Malformations.—This Section contains Specimens of Spina Bifida, Acephalous and double monsters, Ectopia Cordis, Malformations of the Heart, Urinary, and Generative Organs. Most of them have been elaborately described by Mr. R. D. Grainger, and the malformations of the heart are referred to by Dr. Farre and Dr. Peacock in their works. There are also very interesting specimens of malformation described by Dr. Bristowe, Mr. Le Gros Clark, and Mr. Sydney Jones.

The Museum contains a considerable number of valuable Ethnological Specimens.

The Museum of Comparative Anatomy contains about 1,000 Preparations, some of them very rare and valuable.

A large number of these Specimens were made by Sir A. Cooper, to illustrate his Lectures, when Professor of Comparative Anatomy to the Royal College of Surgeons.

The Cabinet of Microscopical Anatomy contains upwards of 600 injected and other Specimens.

The principal part of these Preparations was made by Mr. Rainey, to illustrate the Histological Course of Lectures; and there are other Preparations described by him in Papers published in the Philosophical Medico-Chirurgical, and Microscopical Transactions, and in other scientific works.

The Materia Medica Museum contains at least 600 specimens, arranged and labelled according to the British Pharmacopœia of 1867, and is now under the superintendence of Dr. Stone.

The Museum of Chemistry and Mineralogy is under the Superintendence of Dr. Bernays, who founded the Museum and presented the larger part of the Specimens contained in it.

OCTOBER, 1880.

1	F	Introductory Address, 3 P.M. Annual Dinner.
2	S	
3	☉	Nineteenth Sunday after Trinity.
4	M	[duty.
5	Tu	Ward Clerks, Clinical Clerks and Dressers commence
6	W	
7	Th	Exam. Soc. Apoth., every Thursday.
8	F	
9	S	
10	☉	Twentieth Sunday after Trinity.
11	M	
12	Tu	
13	W	
14	Th	Exam. Soc. Apoth.
15	F	Last day for Certificates for 2nd M.B. Lond.
16	S	
17	☉	Twenty-first Sunday after Trinity.
18	M	Saint Luke.
19	Tu	
20	W	
21	Th	Exam. Soc. Apoth.
22	F	
23	S	
24	☉	Twenty-second Sunday after Trinity.
25	M	
26	Tu	
27	W	
28	Th	Exam. Soc. Apoth.
29	F	
30	S	
31	☉	Twenty-third Sunday after Trinity.

The Hospital Entrance Science Scholarships Examination takes place during this month.

The Registration and Museum Committees meet during this month.

NOVEMBER, 1880.

1	M	Univ. Lond. 2nd M.B. Exam.
2	Tu	All Souls' Day.
3	W	
4	Th	Exam. Soc. Apoth.
5	F	Gunpowder Plot.
6	S	
7	✠	Twenty-fourth Sunday after Trinity.
8	M	
9	Tu	[Surgs., & Asst. do.; of Res. Accouch., & Ophth. Asst.*
10	W	Last day for applications for offices of House Phys. and
11	Th	Exam. Soc. Apoth.
12	F	
13	S	Univ. Lond. M.B. list published.
14	✠	Twenty-fifth Sunday after Trinity.
15	M	Univ. Lond. 2nd M.B. Honours Exam.
16	Tu	
17	W	Meeting to appoint House Officers, &c.
18	Th	Exam. Soc. Apoth.
19	F	
20	S	
21	✠	Twenty-sixth Sunday after Trinity.
22	M	Univ. Lond. M.D. and M.S. Exam.
23	Tu	
24	W	
25	Th	Exam. Soc. Apoth.
26	F	
27	S	
28	✠	Advent Sunday.
29	M	
30	Tu	Saint Andrew.

Royal College of Surgeons' Primary and Pass Examinations during this Month.

* *Applications for these appointments to be made to the Secretary, by letter, stating the Student's qualifications, the offices which he has previously held in the Hospital, and the number of Maternity Cases attended.*

DECEMBER, 1880.

1	W	Princess of Wales born 1844.
2	Th	Exam. Soc. Apoth.
3	F	
4	S	
5	✠	Second Sunday in Advent.
6	M	
7	Tu	House Phys. and Surgns., Asst. do., R. A. and Ophth.
8	W	[Assist. commence duty.
9	Th	Exam. Soc. Apoth.
10	F	
11	S	
12	✠	Third Sunday in Advent.
13	M	Univ. Camb. M. C. and M. B. Exam.
14	Tu	[Dresserships.
15	W	Last day for applications for Clinical Clerkships and
16	Th	Exam. Soc. Apoth.
17	F	
18	S	Lectures terminate, and Vacation begins.
19	✠	Fourth Sunday in Advent.
20	M	
21	Tu	Saint Thomas.
22	W	Meeting to appoint Clinical Clerks and Dressers.
23	Th	Exam. Soc. Apoth.
24	F	Last day for Certs., for Matric. Exam., Univ., Lond.
25	S	Christmas Day. [Jan., 1881.
26	✠	First Sunday after Christmas.
27	M	
28	Tu	
29	W	
30	Th	Exam. Soc. Apoth.
31	F	

The Preliminary Examination in General Knowledge at the Royal College of Surgeons during this month.

JANUARY, 1881.

1	S	Circumcision.
2	✠	Second Sunday after Christmas.
3	M	Vacation terminates, and Lectures re-commence.
4	Tu	Clinical Clerks and Dressers commence duty
5	W	
6	Th	Exam. Soc. Apoth. Epiphany.
7	F	
8	S	
9	✠	First Sunday after Epiphany.
10	M	Lond. Univ. Matric.
11	Tu	
12	W	
13	Th	Camb. Lent Term begins. Exam. Soc. Apoth.
14	F	Oxford Hilary do. do.
15	S	
16	✠	Second Sunday after Epiphany.
17	M	
18	Tu	
19	W	
20	Th	Exam. Soc. Apoth.
21	F	
22	S	
23	✠	Third Sunday after Epiphany.
24	M	
25	Tu	
26	W	
27	Th	Exam. Soc. Apoth.
28	F	
29	S	
30	✠	Fourth Sunday after Epiphany.
31	M	

Royal College of Surgeons' Primary and Pass Examinations during this month.
The Registration and Museum Committees meet during this month.

FEBRUARY, 1881.

1	Tu	
2	W	
3	Th	Exam. Soc. Apoth.
4	F	
5	S	
6	☉	Fifth Sunday after Epiphany.
7	M	
8	Tu	
9	W	
10	Th	Exam. Soc. Apoth.
11	F	
12	S	
13	☉	Septuagesima Sunday.
14	M	
15	Tu	[and Surgns., of Asst. Surgns., and of R. A.*
16	W	Last day for applications for offices of House Phys.
17	Th	Exam. Soc. Apoth.
18	F	
19	S	
20	☉	Sexagesima Sunday.
21	M	
22	Tu	
23	W	Meeting to appoint House Officers and R. A.
24	Th	Exam. Soc. Apoth.
25	F	
26	S	
27	☉	Quinquagesima Sunday.
28	M	

* *Applications for these appointments to be made to the Secretary, by letter, stating the Student's qualifications, the offices which he has previously held in the Hospital, and the number of Maternity Cases attended.*

MARCH, 1881.

1	Tu	House Physns. and Surgns., and Asst. do., also R. A.
2	W	Ash Wednesday. [commence duty.
3	Th	Exam. Soc. Apoth.
4	F	
5	S	
6	✠	First Sunday in Lent.
7	M	
8	Tu	[Clerks, Clinical Clerks, and Dressers.
9	W	Last day for applications for appointments of Ward
10	Th	Exam. Soc. Apoth.
11	F	
12	S	
13	✠	Second Sunday in Lent.
14	M	
15	Tu	[Dressers.
16	W	Meeting to select Ward Clerks, Clinical Clerks, and
17	Th	Exam. Soc. Apoth.
18	F	
19	S	Camb. Lent Term ends. Oxford Hilary Term ends.
20	✠	Third Sunday in Lent.
21	M	
22	Tu	
23	W	
24	Th	Exam. Soc. Apoth.
25	F	Lady Day.
26	S	
27	✠	Fourth Sunday in Lent.
28	M	Examinations at end of Session.
29	Tu	Do. Do.
30	W	End of Session.
31	Th	Registrar's Report for last year due. Last Day for Reports for Solly Medal in 1882. Exam. Soc. Apoth.

Preliminary Examination in Arts of Royal College of Surgeons this month.

APRIL, 1881.

1	F	Camb. Easter Term begins.
2	S	
3	S	Fifth Sunday in Lent.
4	M	
5	Tu	Ward Clerks, Clinical Clerks, and Dressers commence
6	W	[duty.
7	Th	Exam. Soc. Apoth.
8	F	
9	S	
10	S	Palm Sunday.
11	M	
12	Tu	
13	W	
14	Th	Exam. Soc. Apoth.
15	F	Good Friday.
16	S	
17	S	Easter Day.
18	M	Easter Monday.
19	Tu	
20	W	Oxford Easter Term begins.
21	Th	Exam. Soc. Apoth.
22	F	Cambridge Easter Term begins.
23	S	
24	S	Low Sunday.
25	M	
26	Tu	
27	W	
28	Th	Exam. Soc. Apoth.
29	F	
30	S	

Royal College of Surgeons' Primary and Pass Examinations during this month.
The Examinations for the Mead and Cheselden Medals take place this month.
The Annual Inspection of the Museum and meeting of Museum Committee take place during this month.
The Registration Committee meets during this month.
Preliminary Examination in Arts of Apothecaries Society held this month.

MAY, 1881.

1	☉	Second Sunday after Easter.
2	M	The Summer Session commences.
3	Tu	
4	W	
5	Th	Exam. Soc. Apoth.
6	F	
7	S	
8	☉	Third Sunday after Easter.
9	M	
10	Tu	[and Surgns., and Asst. do., of R. A., & Ophth. Asst.*
11	W	Last day for applications for offices of House Phys.
12	Th	First Stone of St. Thomas's New Hospital laid by
13	F	[H.M. the Queen, 1868.
14	S	
15	☉	Fourth Sunday after Easter.
16	M	
17	Tu	
18	W	Meeting to appoint House Officers, R. A. and Ophth.
19	Th	Exam. Soc. Apoth. [Asst.
20	F	
21	S	
22	☉	Fifth Sunday after Easter.
23	M	
24	Tu	Queen Victoria born, 1819.
25	W	
26	Th	Exam. Soc. Apoth. Ascension Day.
27	F	
28	S	
29	☉	Sunday after Ascension Day.
30	M	
31	Tu	

Royal College of Surgeons' Primary and Pass Examinations during this Month.

* *Applications for these appointments to be made to the Secretary, by letter, stating the Student's qualifications, the offices which he has previously held in the Hospital, and the number of Maternity Cases attended.*

JUNE, 1881.

1	W	
2	Th	Exam. Soc. Apoth.
3	F	Oxford Easter Term ends.
4	S	Oxford Trinity Term begins.
5	☉	Whit Sunday.
6	M	Whit Monday.
7	Tu	House Phys. and Surgns., and Asst. do., R. A. and
8	W	[Ophth. Asst. commence duty.
9	Th	Camb. M.C. & M.B. Exam.
10	F	
11	S	
12	☉	Trinity Sunday.
13	M	
14	Tu	
15	W	Last day for applications for appointment of Clinical
16	Th	Exam. Soc. Apoth. [Clerks and Dressers.
17	F	
18	S	
19	☉	First Sunday after Trinity. [sion, 1837.
20	M	Matriculation Lond. Univ. Queen Victoria's Acces-
21	Tu	New St. Thomas's Hospital opened by H. M. the Queen,
22	W	Meeting to app. Clerks & Dressers [1871. Sum. Q. beg.
23	Th	Exam. Soc. Apoth.
24	F	Midsummer Day. Camb. Easter Term ends.
25	S	
26	☉	Second Sunday after Trinity.
27	M	
28	Tu	Queen Victoria crowned, 1838.
29	W	
30	Th	

Preliminary Examination in General Knowledge at the Royal College of Surgeons during this month.

The Harveian Oration is delivered at the Royal College of Physicians annually in the month of June.

Doctor of Science Examination at London University takes place within the first 21 days of June.

Distribution of Prizes for past Sessions during this month.

JULY, 1881.

1	F	
2	S	
3	✠	Third Sunday after Trinity.
4	M	
5	Tu	Clinical Clerks and Dressers commence duty.
6	W	
7	Th	Exam. Soc. Apoth.
8	F	
9	S	
10	✠	Fourth Sunday after Trinity.
11	M	
12	Tu	[Officers for September.
13	W	Last day for applications for appointment of House
14	Th	Exam. Soc. Apoth.
15	F	
16	S	
17	✠	Fifth Sunday after Trinity.
18	M	Preliminary Sci. Exam. London University.
19	Tu	
20	W	Meeting to appoint House Officers for September.
21	Th	Exam. Soc. Apoth.
22	F	
23	S	
24	✠	Sixth Sunday after Trinity.
25	M	Examinations at end of Summer Session.
26	Tu	Do. do.
27	W	
28	Th	
29	F	
30	S	
31	✠	Seventh Sunday after Trinity.

Royal College of Surgeons' Primary and Pass Examinations during this Month.
The Registration and Museum Committees meet during this month.

AUGUST, 1881.

1	M	
2	Tu	
3	W	
4	Th	Exam. Soc. Apoth.
5	F	
6	S	
7	☩	Eighth Sunday after Trinity.
8	M	
9	Tu	
10	W	
11	Th	Exam. Soc. Apoth.
12	F	
13	S	
14	☩	Ninth Sunday after Trinity.
15	M	
16	Tu	
17	W	
18	Th	Exam. Soc. Apoth.
19	F	
20	S	
21	☩	Tenth Sunday after Trinity.
22	M	
23	Tu	
24	W	
25	Th	Exam. Soc. Apoth.
26	F	
27	S	
28	☩	Eleventh Sunday after Trinity.
29	M	
30	Tu	
31	W	

SEPTEMBER, 1881.

1	Th	Exam. Soc. Apoth.
2	F	
3	S	
4	S	Twelfth Sunday after Trinity.
5	M	[commence duty.
6	Tu	House Phys. and Surgns., and Asst. do., also R. A.
7	W	Last day for applications for appointments of Ward
8	Th	Exam. Soc. Apoth. [Clerks, Clinical Clerks, & Dressers.
9	F	
10	S	
11	S	Thirteenth Sunday after Trinity.
12	M	
13	Tu	[Dressers.
14	W	Meeting to select Ward Clerks, Clinical Clerks, and
15	Th	Exam. Soc. Apoth.
16	F	
17	S	
18	S	Fourteenth Sunday after Trinity.
19	M	
20	Tu	
21	W	
22	Th	Exam. Soc. Apoth.
23	F	
24	S	
25	S	Fifteenth Sunday after Trinity.
26	M	
27	Tu	
28	W	
29	Th	Michaelmas Day. Exam. Soc. Apoth.
30	F	Announcement of subject and date for Grainger Prize, [to be awarded in 1882.

Royal College of Surgeons' and Apothecaries' Hall Preliminary Examinations in General Knowledge this month.

St. Thomas's Hospital.

MEDICAL AND PHYSICAL SOCIETY.

Hon. President, 1880–81.

H. H. Clutton, Esq.

Vice-Presidents.

The Physicians.	The Surgeons.
The Assist.-Physicians.	The Assist.-Surgeons.
C. Stewart, Esq.	Dr. A. Carpenter.
Dr. Bernays.	Dr. Reid.
Dr. Gillespie.	B. Pitts, Esq.
G. Gulliver, Esq.	Dr. Rayner.
S. Osborn, Esq.	W. J. Kilner, Esq.

Hon. Secretaries.

Mr. W. Wansbrough Jones, Mr. T. G. Lyon.

Committees.

4th Year, Mr. W. Fell,	Mr. G. E. Seon.
3rd Year, Mr. J. E. Kershaw,	Mr. R. Rouse.
2nd Year, Mr. S. Plowman,	Mr. J. P. Glover.

This Society was originated in the early part of the present century by students of the Hospital for the reading and discussion of papers on Medicine, Surgery, and the allied sciences, the narration of cases, and the exhibition of specimens of Physiological and Pathological interest. The Meetings are held in the Library on alternate Thursdays at 7·30 p.m., and terminate not later than 9·30.

Three Certificates of Honour are annually awarded by the Medical School to the authors of the best papers written by the fourth, third, and second years students respectively, and read before the Society. The annual soirée is held in December.

Further information can be obtained of the Hon. Secretaries.

Distribution of Prizes for the Past Sessions.

SUMMER SESSION, 1879.

FIRST YEAR'S STUDENTS.

O. F. N. Treadwell ... *Brixton* ... ... — College Prize, £15. and Certificate of Honour.

SECOND YEAR'S STUDENTS.

L. W. Bickle ... ... *St. Leonards* ... ... — College Prize, £15. and Certificate of Honour.

W. Wansbrough Jones *Leek* ... ... — College Prize, £10. and Certificate of Honour.

WINTER SESSION, 1879-80.

ENTRANCE SCIENCE SCHOLARSHIPS.

R. M. Williams ... ... *Beaumaris* ... ... — Scholarship, £60. and Certificate of Honour.

B. Relton ... ... *Ealing* ... ... — Scholarship, £40. and Certificate of Honour.

FIRST YEAR'S STUDENTS.

C. D. Green ... ... *New Cross* ... ... — The Wm. Tite Scholarship, £30. and Certificate of Honour.

W. B. Tomson ... ... *Luton* ... ... — College Prize, £20. and Certificate of Honour.

F. F. Caiger... .. ... *Pimlico* ... ... — College Prize, £10. and Certificate of Honour.

THIRD YEAR'S STUDENTS.

W. Wansbrough Jones ... ... — Second Tenure of College Scholarship, 40 Gs. and Certificate of Honour.

W. Wansbrough Jones ... ... — College Prize, £20. and Certificate of Honour.

ANATOMICAL ASSISTANTS.

G. F. Cooper	*Reading*	Certificate of Honour.
L. W. Bickle	*St. Leonards*	Certificate of Honour.
W. T. Crick	*Leicester*	Certificate of Honour.

PROSECTORS.

J. E. Dunn	*Preston*	Prize, and Certificate of Honour.
F. H. Furnival	*Nottingham*	Prize, and Certificate of Honour.

SOLLY MEDAL AND PRIZE.

C. A. Ballance	*Lower Clapton* ...	The Solly Medal and Prize of £20. and Certificate of Honour.

SURGERY AND SURGICAL ANATOMY.

W. A. Duncan	*Manchester*	The Cheselden Medal, founded by the late Geo. Vaughan, Esq.

PRACTICAL MEDICINE.

C. F. Coxwell	*Brighton*	The Mead Medal, founded by Mr. & Mrs. Newman Smith.

RESIDENT ACCOUCHEURS.

W. H. Battle	*Lincoln*	Certificate of Honour.
K. Takaki	*Japan*	Certificate of Honour.
C. E. Sheppard	*Kensington*	Certificate of Honour.
C. A. Ballance	*Lower Clapton* ...	Certificate of Honour.

HOUSE PHYSICIANS.

W. W. Groome	*Suffolk*	Certificate of Honour.
R. P. Smith	*Brixton*	Certificate of Honour.
J. Shaw	*Clapham*	Certificate of Honour.
A. Newsholme	*Bradford*	Certificate of Honour.

ASSISTANT HOUSE PHYSICIANS.

R. P. Smith	*Brixton*	Certificate of Honour.
D. S. Davies	*Bristol*	Certificate of Honour.
J. Shaw	*Clapham*	Certificate of Honour.
A. Newsholme	*Bradford*	Certificate of Honour.
J. R. Lunn	*Hull*	Certificate of Honour.
R. J Williamson	*Ripon*	Certificate of Honour.
G. S. Hatton	*Newent*	Certificate of Honour.

HOUSE SURGEONS.

D. S. Davies	*Bristol*	Certificate of Honour.
R. J. Williamson	*Ripon*	Certificate of Honour.
R. P. Smith	*Brixton*	Certificate of Honour.
C. E. Sheppard	*Kensington*	Certificate of Honour.

ASSISTANT HOUSE SURGEONS.

R. J. Williamson	*Ripon*	Certificate of Honour.
C. A. Ballance	*Clapton*	Certificate of Honour.
A. Newsholme, ...	*Bradford*	Certificate of Honour.
J. R. Lunn	*Hull*	Certificate of Honour.

FOR GENERAL PROFICIENCY AND GOOD CONDUCT.

W. A. Duncan ... ... *Manchester* ... ... } The Treasurers' Gold Medal.

The following Distinctions have been obtained by Students of St. Thomas's Hospital during the past year:—

The Gold Medal in the M.D. Examination of the London University, by Mr. J. F. Nicholson.

The Scholarships and Gold Medals in Medicine and in Obstetrics, at the M.B. Examination of the London University, by Mr. R. P. Smith.

The Radcliffe Travelling Fellowship at Oxford University, by Mr. W. Wansbrough Jones.

The Gold Medal in Materia Medica at Apothecaries Hall, by Mr. C. W. Haig-Brown.

The first place in the Examination for the Army Medical Department, by Mr. F. R. Barker.

LIST OF STUDENTS

WHO HAVE OBTAINED

Honours in the Annual Examinations.

w *refers to Winter and* s *to Summer Session.*

The Addresses are those given at the time of Entry.

Acland (T. D.), Oxford.
w 1877–8. 3rd Year Physical Society's Prize. Paper published in Hospital Reports, Vol. VIII.
w 1878–9. 4th Year Student. The Mead Medal.

Addy (B.), West Deeping, Lincolnshire.
1869. 1st Year Student, 1st College Prize;
Physical Society's 1st Year's Prize.
1870. 2nd Year Student, 1st Coll. Prize;
Physical Society's 2nd Year's Prize.
1871. 3rd Year Student, 1st Coll. Prize;
Prosector's Prize;
Treasurer's Gold Medal.

Allingham (W.),* Bermondsey.
1852. Descriptive Anatomy, Hon. Cert.;
Chemistry, Hon. Cert.
1853. Midwifery, Hon. Cert.
1854. Medicine, Hon. Cert.;
Descriptive Anatomy, Prize;
Midwifery, Hon. Cert.;
Physical Society's Essay, Prize;
Surgery, Prize;
Physiology, Hon. Cert.
1855. Medicine, Prize;
Descriptive Anatomy, Hon. Cert.;
Physiology, Hon. Cert.;
Clinical Medicine, President's Prize;
Clinical Medicine, Treasurer's Prize.

Anderson (W.),† Clapham, Surrey.
1865. 1st Year Student, 3rd Coll. Prize.
1866. 2nd Year Student, 3rd Coll. Prize.
1867. 3rd Year Student, 1st Coll. Prize;
Physical Society's 3rd Year's Prize;
Cheselden Medal.

Armstrong (H. G.), Reading.
s 1872. 1st Year Student, Hon. Cert.
w1874. 3rd Year Student, 3rd Coll. Prize.

* Late Surgical Tutor, Surgeon to Great Northern Hospital, Surgeon to St. Mark's Hospital.

† Assistant Surgeon to, and formerly Assistant Demonstrator of Anatomy, and Surgical Registrar at St. Thomas's Hospital, late Medical Officer to H.B.M. Legation in Japan, and Professor of Medical Sciences at the Japanese Naval Medical College, Jeddo.

Atkinson (F. P.), Kew.
1861. 1st Year Matriculation Examination—Classics and Mathematics, Hon. Cert.

Atkinson (J.), Kirkby-Lonsdale.
1853. Chemistry, Hon. Cert.

Aveling (C. T.), Shacklewell.
1863. Matriculation Examination—Physics and Natural History, 1st College Prize;
1st Year Student, 1st College Prize.
1864. 2nd Year Student, 2nd College Prize.
1865. 3rd Year Student, 3rd College Prize.

Bailey (J. H. T.), Greenwich.
1843. Materia Medica, Hon. Cert.

Bain (J.)
1855. Midwifery, Hon. Cert.

Ballance (C. A.), Lower Clapton.
w 1875-6. 1st Year Student, Hon. Cert.
w 1876-7. 3rd Year Student, 3rd College Prize, and Physical Society's 3rd Year's Prize;
1880. The Solly Medal and Prize.

Barker (F. R.), Aldershot.
w 1875. Prosector's Prize.

Barron (H. J.), Guilford Street, Russell Square.
w 1877-8. 2nd Year Student, Prosector's Prize.

Barwell (R.),‡ Norwich.
1847. Medicine, Hon. Cert.;
Midwifery, Hon. Cert.
1848. Physical Society's Essay, Treasurer's Prize;
Physiology and Anatomy, Hon. Cert.;
Midwifery, Hon. Cert.;
Dresser's Surg Repts., Hon. Cert.
1850. Clinical Medicine, Prize.

Bateson (J. M.), Kirkby-Lonsdale.
1855. Chemistry, Hon. Cert.

Battle (W. H.), Hanworth, Lincolnshire.
s 1874. Hon. Cert.
w 1875. 2nd Year Student, 3rd College Prize.
w 1876-7. 3rd Year Student, The First Solly Medal and Prize.

‡ Surgeon to Charing Cross Hospital.

Beal (P.), Plymouth.
1844. Chemistry, 2nd Prize.

Beardsley (A.), Shipley, Derby.
1843. Midwifery, 2nd Prize.

Bedford (R. J.),* Sleaford.
1858. Midwifery, Hon. Cert.

Benwell (H. D.), Greenwich.
1843. Chemistry, 2nd Prize.
1845. Physiology and Anatomy, Medal.
1847. Clinical Medical Reports, Prize; Gen. Proficiency, Trea. Medal.

Bell (C. N.), Rochester.
1867. 3rd Year Student, 3rd Coll. Prize.

Bell (J. V.), Rochester.
1859. 1st Year Student, Treasurer's 2nd Prize; Matriculation Examination—Classics and Mathematics, Hon. Cert.
1860. 2nd Year Student, Hon. Cert.
1861. 3rd Year Student, 3rd Coll. Prize.

Bernays (H. L.), Chatham.
w 1873. Prosector's Prize.

Bernays (A. V.), Great Stanmore.
s 1876. 1st Year Student, Hon. Cert.

Bickle (L. W.), St. Leonard's-on-Sea.
s 1878. 1st Year Student, 3rd Coll. Prize;
s 1879. 2nd Year Student, 1st Coll. Prize.

Biddle (D.), Wotton-under-Edge.
1860. 1st Year Student, Trea. Prize; Matriculation Exam.—Prize.
1861. 2nd Year Student, Hon. Cert.
1862. 3rd Year Student, Hon. Cert.

Birtwell (H. H.), Enfield, Lancashire.
1865. 3rd Year Student, Hon. Cert.

Black (J.), Kentish Town.
w 1872. 2nd Year Student, Prosector's Prize.

Black (W. S.), Chesterfield, Derby.
1855. Midwifery, Hon. Cert.; Medicine, Hon. Cert.

Blackett (W. C.), Durham.
1851. Descriptive Anatomy, Hon. Cert.

Blades (C. C.)
1855. Midwifery, Hon. Cert.

Bone (W.), Camberwell.
1857. 1st Year Student, Trea. 1st Prize.
1858. 2nd Year Student, Trea. 1st Prize.

Bonser (J. H.), Sutton-in-Ashfield.
1871. 3rd Year Student, 2nd Coll. Prize; Cheselden Medal.

Boulger (J.), Gravesend.
1870. 1st Year Student, Sir Wm. Tite's Scholarship.
1871. 2nd Year, Sir W. Tite's Scholarship.
w 1872. 3rd Year, Sir W. Tite's Scholarship.

* Late Assistant-Surgeon at the "Dreadnought" Hospital Ship.

Bowen (E.), Llyn, Gwair, Pembroke.
1847. Descriptive and Surgical Anatomy, Hon. Cert.; Materia Medica, Hon. Cert.
1848. Descriptive and Surgical Anatomy, Hon. Cert.; Physiology and Anatomy, Hon. Cert.; Botany, Hon. Cert.; Comparative Anatomy, Hon. Cert.

Bown (J. Y.), America.
1848. Descriptive and Surgical Anatomy, Hon. Cert.

Brake (J.), Holt, Wilts.
1851. Matriculation Scholarship, Hon. Cert.; Descriptive Anatomy, Hon. Cert.; 1st Year Student, Scholarship; Chemistry, Hon. Cert.
1852. 2nd Year Student, Scholarship; Physiology, Prize; Materia Medica, Hon. Cert.; Botany, Hon. Cert.; Medicine, Hon. Cert.
1853. 3rd Year Student, Scholarship; Clinical Medicine, Trea. Prize; Midwifery, Prize; Forensic Medicine, Prize.

Bristowe (J. S.),† Camberwell.
1847. Medicine, Hon. Cert.; Physiology and Anatomy, Hon. Cert.; Descriptive and Surgical Anatomy Prize.
1848. Descriptive and Surgical Anatomy, Hon. Cert.; Physiology and Anatomy, Prize; Practical Chemistry, Prize; Botany, Prize; Midwifery, Hon. Cert.; Comparative Anatomy, Prize; Surgery, Prize; General Proficiency, Treasurer's Medal.

Britton (T.), Doncaster.
1861. 1st Year Student Hon. Cert.

Brock (J.), Northwich.
w 1872. 1st Year Student, 2nd Coll. Prize.
s 1872. Hon. Cert.

Brown (F. G.), London.
1860. 1st Year Student, Hon. Cert.
1861. 2nd Year Student, 3rd Coll. Prize.
1862. 3rd Year Student, 3rd Coll. Prize.

Brown (G. D.), Croydon.
1851. Physiology, Hon. Cert.; Botany, Prize; Surgery, Hon. Cert.;
1852. Physiology, Hon. Cert.; Physical Society's Essay, Treasurer's Prize; Medicine, Hon. Cert.; Pathology, Prize.

Brown (T. J. E.), Dorchester.
1848. Practical Midwifery, Hon. Cert.

† Physician to and Joint Lecturer on Medicine at St. Thomas's Hospital. Late Lecturer on General Pathology.

Bucknill (E. R.), Bedford.
1855. 1st Year Student, Scholarship; Midwifery, Hon. Cert.; Chemistry, Hon. Cert.; Descriptive Anatomy, Hon. Cert.; Materia Medica, Hon. Cert.

Bull (J.), Norwood, Surrey.
1848. Midwifery, Hon. Cert.

Butler (W.), Stoke Newington.
1845. Materia Medica, Hon. Cert.

Caiger (F. F.), Gloucester-st., S.W.
w 1879–80. 1st Year Student, 3rd Coll. Prize.

Carpenter (A.),* Rothwell.
1848. Descriptive and Surgical Anatomy, Hon. Cert.; Chemistry, Prize; Materia Medica, Hon. Cert.; Matriculation Scholarship, Prize.
1849. Physiology Hon. Cert.; Midwifery, Hon. Cert.; Descriptive Anatomy, 1st Prize; Medicine, 2nd Prize.
1850. Physiology, Hon. Cert.; Descriptive Anatomy, Hon. Cert.; Botany, Prize; Medicine, Prize; Surgery, Prize; [Medal. General Proficiency Treasurer's
1851. (Accoucheur) Midwifery, Prize; Essay on Chorea, Mr. N. Smith's Prize.
1852. Surgical Reports, President's Prize; Medical Reports, Dr. Roots' Prize; Ophthalmic Reports, a Governor's Prize; Clinical Medicine, Senior Prize.

Carpenter (A. B.), Croydon.
w 1876–7. 1st Year Student, Hon. Cert.;

Carr (J. T.), Bombay.
1844. Surgery, Prize.

Castle (H.), Newport, Isle of Wight.
w 1874–5 1st Year Student, 2nd Coll. Prize.
s 1875. 3rd College Prize.
w 1876–7. Physical Society's 3rd Year's Prize.

Caulde (A. W. W.), Henfield, Sussex.
1858. Clinical Medicine, Prize.

Chaldecott (C. W.), Dorking.
1849. Descriptive Anatomy, Hon. Cert.; Chemistry, Hon. Cert.; Materia Medica, 2nd Prize; 1st Year Student, Scholarship.
1850. Physiology, Hon. Cert. Surgery, Prize.
1851. Physiology, Prize; Descriptive Anatomy, Hon. Cert.; Medicine, Hon. Cert.; Physical Society's Essay, Treasurer's Prize; Surgery, Hon. Cert.; General Proficiency, Treasurer's Silver Medal.

Chaldecott (T. A.), Newington.
1848. Descriptive Surgical Anatomy, Hon. Cert.; Chemistry, Hon. Cert.; Botany, Hon. Cert.; Materia Medica, Hon. Cert. Comparative Anat., Hon. Cert.; Matriculation Scholarship, Prize; Practical Chemistry Hon. Cert.
1849. Physiology, Hon. Cert. Midwifery, Hon. Cert.; Surgery, 2nd Prize; Medicine, Hon. Cert.
1850. Physiology, Hon. Cert.; Forensic Medicine, Prize; Pathology, Prize; Medicine, Hon. Cert.; Surgery, Hon. Cert.

Chapman (C. E.), Preston.
1855. Midwifery, Hon. Cert.; Materia Medica, Hon. Cert.
1857. Clinical Assistant, Prize; Physical Society's Essay, Prize.

Cherry (A. H.), Clapham.
1845. Clinical Medicine, Hon. Cert.

Chipperfield (W. N.), Reading.
1852. 1st Year Student, Scholarship; Descriptive Anatomy, Prize.
1853. 2nd Year Student, Scholarship; Physiology, Prize; Descriptive Anatomy, Prize; Midwifery, Prize; Physical Society's Essay, Prize; Medicine, Prize; Surgery, Prize.
1854. 3rd Year Student, Scholarship. Medicine, Prize; Descriptive Anatomy, Hon. Cert.; Midwifery, Prize; Physical Society's Essay, Treasurer's Prize; Forensic Medicine, Prize; Chemistry, Hon. Cert.; Comparative Anatomy, Prize; Pathology, Prize; Surgery and Surgical Anatomy, Cheselden Medal; Clinical Medicine, Treasurer's Prize; Physiology, Prize; General Proficiency, Treasurer's Medal.

Clapton (E.),† Stamford.
1851. Matriculation Scholarship, Hon. Cert. 1st Year Student, 1st Scholarship; Descriptive Anatomy, Prize; Chemistry, Prize.
1852. 2nd Year Student, Scholarship; Physiology, Prize; Materia Medica, Prize; Botany, Prize; Medicine, Hon. Cert.
1853. 3rd Year Student, Scholarship; Physiology, Hon. Cert.; Clinical Medicine, Treasurer's Prize; Midwifery, Hon. Cert.; Physical Society's Essay, Treasurer's Prize; Medicine, Hon. Cert.; Forensic Medicine, Hon. Cert.; Chemistry, Hon. Cert.; Surgery, Hon. Cert.
1854. Ophthalmic Reports, Governor's Prize; Clinical Medicine, Mr. N. Smith's Prize.

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* Lecturer on State Medicine at St. Thomas's Hospital.

† Late Physician to and Lecturer on Materia Medica at St. Thomas's Hospital. Physician to the Magdalen Hospital.

CLAPTON (W.), Stamford.
1855. Midwifery, Hon. Cert.; Descriptive Anatomy, Hon. Cert.; Materia Medica, Prize.
1856. Clinical Medicine, Prize.
1858. Midwifery, Hon. Cert.

CLARKE (A.), Dorking.
1856. 1st Year Student, Treasurer's 2nd Prize.

CLARK (J. H.), Jamaica.
1867. 2nd Year Student, Physical Society's 2nd Year's Prize.

CLARKSON (J. W.), Surbiton.
w 1872. 2nd Year Student, 3rd Coll. Prize.
w 1873. 3rd Year Student, 2nd Coll. Prize; Surgery and Surgical Anatomy, Hon. Cert.

CLEGHORN (G.), Bedford.
1872. 3rd Year Student, Hon. Cert.

COGGINS (T.), Hayford, Woodstock.
1847. Chemistry Hon. Cert.
1848. Descriptive and Surgical Anatomy. Hon. Cert.; Midwifery, Hon. Cert.
1849. Midwifery, Hon. Cert.; Medicine, Hon. Cert.
1850. Surgical Reports, Prize; (Accoucheur) Midwifery, Hon. Cert.

COLBY (W. T.), Malton, York.
1849. Descriptive Anatomy, Hon. Cert.; Midwifery, Hon. Cert.

COLLIER (T. P.), Worship Square.
1847. Practical Midwifery, Prize.

COMPLIN (E. J.), Charterhouse Square.
1851. Clinical Medicine, Prize; Medical Cases, President's Prize; Surgery, Hon. Cert.
1852. Midwifery, Hon. Cert.; Pathology, Hon. Cert.

COOK (W.), Gainsboro'.
1844. Chemistry, Hon. Cert.; Materia Medica, Hon. Cert.

COOKE (J.), Stamford.
1855. Comparative Anatomy, Prize; Midwifery, Hon. Cert.; Physiology, Hon. Cert.

CORY (R.),* Carlisle.
1870. Physical Society's 3rd Year's Prize.

COUSINS (J. W.), Portsea.
1864. Descriptive Anatomy, Hon. Cert.; Chemistry, Hon. Cert.
1855. Surgery, Prize; Midwifery, Prize; Midwifery, Hon. Cert.
1856. Clinical Medicine, Prize; Surgery and Surgical Anatomy, Cheselden Medal.

COWEN (P.), Kennington.
1862. 1st Year Student, 2nd Coll. Prize.
1863. 2nd Year Student, 2nd Coll. Prize.
1864. 3rd Year Student, 2nd Coll. Prize.

* Assistant Obstetric Physician to and Joint-Lecturer on Forensic Medicine at St. Thomas's Hospital

COX (E.), Maiden Newton, Dorsetshire.
1866. 1st Year Student, 3rd Coll. Prize.
1868. 3rd Year Student, 2nd Coll. Prize.

COXWELL (C. F.), Brighton.
1880. 4th Year Student, the Mead Medal.

CRICK (S.A.), Cosby-hill, Leicestershire.
s 1875. 1st Year Student, Hon. Cert.
w 1875–6. Prosector's Prize.
w 1876-7. 3rd Year Student, 3rd Coll. Prize.

CROFT (J.),† Clapton.
1851. Descriptive Anatomy, Hon. Cert.
1853. Midwifery, Hon. Cert.

CROFTS (W. C.), Rowston, Lincoln.
1855. Surgery, Hon. Cert.; Midwifery, Hon. Cert.

CROSBY (T. B.), Gosberton, Lincoln.
1851. Physiology, Prize; Descriptive Anatomy, Prize; Medicine, Prize; Surgery, Prize.
1852. Physiology, Prize; Descriptive Anatomy, Hon. Cert.; Medicine, Hon. Cert.; Forensic Medicine, Prize; Practical Chemistry, Prize; Surgery, Hon. Cert.; Surgery and Surgical Anatomy, *Bronze* Cheselden Medal; Comparative Anatomy, Prize.

CROSSMAN (J.), Redruth.
1871. Physical Society's 1st Year's Prize.
1872. Physical Society's 2nd Year's Prize.
1873. Physical Society's 3rd Year's Prize

DAVIES (D.), Carmarthenshire.
1843. Chemistry, 1st Prize; Midwifery, Hon. Cert.; Materia Medica, Prize.
1844. Medicine, Hon. Cert.; Physiology and Anatomy, Hon. Cert.
1845. Clinical Surgical Reports, Medal.

DAVIES (D. S.), Bristol.
1875–6. Physical Society's 1st Year's Prize.

DAY (W. H.), Norwich.
1844. Surgery, Prize; Physical Society's Essay, Hon. Cert.; Dresser's Clinical Surgery, Prize.

DECK (J. F.), Nelson, New Zealand.
1860. 1st Year Student, 1st Coll. Prize.
1861. 2nd Year Student, 1st Coll. Prize Physical Society's Prize.
1862. 3rd Year Student, 1st Coll. Prize; Physical Society's Prize; Cheselden Medal; Treasurer's Gold Medal.

DICKERSON (S. H.), Hartest, Suffolk.
1853. Physiology, Hon. Cert.; Materia Medica, Hon. Cert.; Midwifery, Hon. Cert.; Medicine, Hon. Cert.

† Surgeon to and Joint-Lecturer on Practical and Manipulative Surgery at St. Thomas's Hospital; late Assistant Demonstrator of Anatomy. Surgeon to the Magdalen Hospital.

Dixon (E. L.), Preston, Lancashire.
1852. 1st Year Student, Scholarship; Chemistry, Hon. Cert.
1853. 2nd Year Student, Scholarship; Physiology, Hon. Cert.; Materia Medica, Prize; Descriptive Anatomy, Hon. Cert.; Midwifery, Hon. Cert.; Botany, Prize; Medicine, Hon. Cert.
1854. 3rd Year Student, Scholarship; Descriptive Anatomy, Hon. Cert.; Practical Chemistry, Prize; Physiology, Hon. Cert.

Dobson (N. C.),* Holbeach, Lincolnshire.
1865. 1st Year Student, 1st Coll. Prize.
1866. 2nd Year Student, 1st Coll. Prize.
1867. 3rd Year Student, 2nd Coll. Prize; A Prize and Hon. Cert. for Proficiency in Surgery & Surgical Anatomy at the Cheselden Medal Examination; Treasurer's Gold Medal.

Drake (A. J.), Kingsclere, Hants.
1870. 3rd Year Student, 1st Coll. Prize.

Drake (C. H.), Kingsclere, Hants.
1857. 1st Year Student, Hon. Cert.;
1858. 2nd Year Student, Treasurer's 1st Prize; Clinical Medicine, 2nd Prize.
1859. 3rd Year Student, Hon. Cert.; Surgery and Surgical Anatomy, Cheselden Medal; General Proficiency, Treasurer's Medal.

Drake (T.), Kingsclere, Hants.
1858. 2nd Year Student, Treasurer's 1st Prize;
1859. 2nd Year Student, President's Prize.
1860. 3rd Year, 1st College Prize; Surgery and Surgical Anatomy, Cheselden Medal; General Proficiency, Treasurer's Medal.

Drew (G. F. A.), Plymouth.
1848. Descriptive and Surgical Anatomy, Prize; Chemistry, Hon. Cert.; Botany, Prize; Comparative Anatomy, Hon. Cert.; Practical Chemistry, Prize; Gen. Proficiency, Hon. Cert.
1849. Physiology, 2nd Prize; Midwifery, Hon. Cert.; Descriptive Anatomy, Hon. Cert.; Medicine, Hon. Cert.
1850. Physiology, Prize; Descriptive Anatomy, Hon. Cert.; Medicine, Hon. Cert.; Surgery, Hon. Cert.

Dukes (C.), Dalston.
1865. 1st Year Student, Hon. Cert
1867. 3rd Year Student, Hon. Cert.; Prosector's Prize and Hon. Cert.

* Surgeon to the Bristol General Hospital and Lecturer on Anatomy at the Bristol Medical School.

Duncan (W. A.), Manchester.
w 1876–7. 1st Year Student, The William Tite Scholarship.
s 1877. 1st College Prize.
w 1877–8 2nd Year Student, The Musgrove Scholarship.
w 1877–8. 2nd Year Physical Society's Prize.
s 1878. 1st College Prize.
w 1878–9. 2ndTenure Musgrove Scholarship. 1st College Prize; 3rd Year Physical Society's Prize; Grainger Testimonial Prize.
1880. 4th Year Student, The Cheselden Medal. The Treasurer's Medal.

Dunman (G.), Camberwell.
1852. Chemistry, Hon. Cert.
1854. Midwifery, Hon. Cert.

Dyer (F. J.), Blackheath.
1847. Chemistry, Prize; Materia Medica, Hon. Cert.;
1849. Physiology, Hon. Cert.; Midwifery, 2nd Prize; Medicine, Hon. Cert.

Eddowes (J. H.), Loughboro'.
1843. Physiology and Anatomy, Hon. Cert.; Chemistry, Hon. Cert.; Comparative Anatomy, Prize.
1844. Physiology and Anatomy, Hon. Cert.; Clinical Medical Reports, Silver Medal.
1845. Clinical Medicine, Prize.

Eddowes (W. D.), Loughboro'.
1845. Descriptive and Surgical Anatomy, Prize.

Edmonds (S.), St. Helen's, Lancashire.
1852. Chemistry, Hon. Cert
1853. Midwifery, Hon. Cert.; Medicine, Hon. Cert.; Surgery, Hon. Cert.
1854. Surgery and Surgical Anatomy, Hon. Cert.; Clinical Medicine, Treas. Prize; Clinical Medicine, Pres. Prize.
1855. Surgical Reports, Pres. Prize; Clinical Medicine, Dr. Roots' Prize.

Edwards (S.), Littlehampton.
1855. Midwifery, Hon. Cert.

Edwards (V.), Woodbridge, Suffolk.
1843. Surgery, Prize.

Elborough (P. J.), Herne Bay.
1845. Chemistry, Hon. Cert.
1847. Medicine, Hon. Cert.; Midwifery, Prize.
1848. Medicine, Hon. Cert.; Surgery, Hon. Cert.; Surgical Report, Pres. Prize.

Ellis (J.), Portsea, Hants.
1857. Clinical Assistant (Medicine), Hon. Cert.

Elwin (C. J.), London.
1855. Practical Midwifery, Prize.

Evans (C. W. de Lacey), Bangor.
w 1876-7. 3rd Year Student, The Solly Prize and Hon. Cert.

Fairbank (J.), Islington.
1865. 1st Year Student, Hon. Cert.
1866. 2nd Year Student, Prosec. Prize.

Farrant (S.), Collumpton, Devon.
1859. 2nd Year Student, Hon. Cert.
1860. 3rd Year Student, Hon. Cert.

Faulkner (R.), Camberwell.
1844. Botany, Prize;
Clinical Medical Reports, Hon. Cert.

Fell (W.), Kensington.
w 1878-9. 2nd Year Student Prosector Prize.

Fenton (H. A. H.), Westminster.
w 1875–6. 1st Entrance Science Scholarship.
s 1876. 1st Year Student, 1st College Prize.

Fernie (A.), Yeldon, Beds.
1853. Physiology, Hon. Cert.;
Surgery, Hon. Cert.

Fernie (W. T.), Yeldon, Beds.
1852. Practical Midwifery, Prize;
Midwifery, Hon. Cert.

Fisher (T.), St. Michael's.
s 1872. 1st Year Student, Hon. Cert.
s 1873. 2nd Year Student, 2nd College Prize.
w 1874. 2nd Year Student, 3rd College Prize.
w 1875. 3rd Year Student, Surgery and Surgical Anatomy, Prize, and Cert. of Hon.

Fowler (J. T.), Winterton, Lincoln.
1854. Chemistry, Hon. Cert.
1855. Botany, Hon. Cert.

Fowler (J.), Winterton, Lincoln.
1859. 1st Year Student, Hon. Cert.
1860. 2nd Year Student, 2nd College Prize.
1861. 3rd Year Student, 2nd College Prize.

Freeman (D.), Kennington.
1859. Clinical Medicine, Prize.

Freeman (A. J.), Southsea, Hants.
1865. 3rd Year Student, Hon. Cert.

Fulton (J. A.), Stockwell.
1852. Botany, Hon. Cert.
1853. Practical Chemistry, Prize.

Furnival (F. H.), Nottingham.
w 1878–9. 1st Year Student;
The Sir Wm. Tite Scholarship.

Gardner (E. B.), London.
1858. Matriculation Examination—Classics & Mathematics, Prize.

Garton (W.), St. Helier's.
1870. 2nd Year Student, 2nd College Prize.
Physical Society's 2nd Year's Prize.
1871. Physical Society's 3rd Year's Prize.

Gimblett (J.), Taunton.
1860. 1st Year Student, Hon. Cert.

George (C. F.), Kirton-on-Lindsay.
1855. Midwifery, Hon. Cert.
1856. 2nd Year Student, Dr. Root's Prize.
1857. 3rd Year Student, Hon. Cert.;
Surgery and Surgical Anatomy, Cheselden Medal.

Gervis (F. H.), Tiverton.
1861. 1st Year Matriculation Scholarship.—College Prize, 2nd College Prize.
1862. 2nd Year Student, 1st College Prize.
1863. 3rd Year Student, Hon. Cert. and Physical Society's Prize.

Gervis (H.),* Tiverton.
1856. 1st Year Student, Trea. 1st Prize; Matriculation Examination, Physics, &c., Prize.
1857. 2nd Year Student, Ines. Prize; Physical Society's Essay, Prize.
1858. Clinical Assistant (Medicine), 2nd Prize;
Physical Society's Essay, Prize;
General Proficiency, Treasurer's Medal.

Giles (F. W.), Henley-on-Thames.
w 1875–6. 3rd Year Student, Hon. Cert.

Gimlette (G. H. D.), Southsea.
s 1874. 1st Year Student, Hon. Cert.
w 1875–6. 3rd Year Student, Hon. Cert.
w 1876-7. Physical Society's 3rd Year's Prize.

Goddard (E.), London.
1860. Matriculation Examination, Classics, &c., Prize.

Goddard (L.), London.
1856 Matriculation Examination, Classics and Mathematics, Prize.

Gowland (W.), London.
1845. Botany, Hon. Cert.

Grabham (C.), Islington.
1857. Matriculation Examination, Modern Languages, Prize.

Grabham (G. W.),† Islington.
1855. Matriculation Examination, Scholarship;
Midwifery, Hon. Cert.;
Materia Medica, Hon. Cert.

Grabham (J.), Rochford, Essex.
1848. Descriptive & Surgical Anatomy, Hon. Cert.;
Chemistry, Hon. Cert.;
Botany, Hon. Cert.;
Comparative Anatomy, Prize.
1850. Physiology, Hon. Cert.
1851. Physiology, Hon. Cert.;
Descriptive Anatomy, Hon. Cert.;
Forensic Medicine, Prize;
Surgery, Prize;
Midwifery, Hon. Cert.

Grabham (M. C.), Islington.
1860. 2nd Year Student, Hon. Cert.
1861. 3rd Year Student, Hon. Cert.

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* Obstetric Physician to, and Lecturer on Midwifery and Diseases of Women and Children. Examiner in Obstetric Medicine, University of London.

† Resident Medical Superintendent at Earlswood Asylum.

GREAVES (C. A.), Derby.
1861. 1st Year Student, Treasurer's Prize; Matriculation Examination, Hon. Cert.
1862. 2nd Year Student, 2nd College Prize; Physical Society's Prize.
1863. 3rd Year Student, 1st College Prize; Physical Society's Prize; Cheselden Medal.

GREEN (C. D.), New Cross.
w 1879–90. 1st Year Student, The Wm. Tite Scholarship.

GREEN (J. T.), Peckham, Surrey.
1865. 1st Year Student, Physical Society's Prize.

GREEN (M. H.), Peckham.
s 1873. 1st Year Student, 2nd College Prize.

GROSE (S.), Boston, Lincoln.
1858. 2nd Year Student, Hon. Cert.
1859. Physical Society's Essay Prize.

GRIFFITHS (A. L.), London.
1859. Midwifery, Hon. Cert.

GULLIVER (G.), Canterbury.
w 1876-7. Physical Society's 2nd Year's Prize.

GURNEY (R. A. F.), Rampton, Cambridge.
1851. Practical Midwifery, Prize.

HAGUE (S.),* Camberwell.
1863. 1st Year Student, 2nd Coll. Prize.

HAIG-BROWN (C. W.), Godalming.
s 1878. 1st Year Student, 2nd College Prize;
w 1878-9. 2nd Year Student, 2nd College Prize.

HAMMERTON (E.), Elland, York.
1857. 1st Year Student, Hon. Cert.

HAMMOND (J. H.), Bridlington, York.
1850. Medical Cases, President's Prize.

HARDING (J. A.), Bath.
1859. Clinical Medicine, 2nd Prize.
1860. Clinical Assistant (Medicine), 1st Prize.

HARPER (R.), Brighton.
1844. Clinical Surgical Reports, Hon. Cert.
1845. Physical Society's Essay, Prize. Dresser's Clinical Surgery, Prize.

HATTON (G. S.), Newent, Gloucestershire.
w 1876-7. 2nd Year Student, Prosector's Prize.

HASLAM (W. F.), Reading.
s 1876. 2nd Year Student, 1st College Prize.
w 1877-8. The Cheselden Medal.

HEELIS (R.), Carshalton.
s 1877. 1st Year Student, 2nd College Prize.
s 1878. 2nd Year Student, 2nd Coll. Prize.

HEWLETT (T. J.), Harrow.
1850. Matriculation Scholarship, Prize.

HEYGATE (W. N.), Harslope, Bucks.
1863. 2nd Year Student, Hon. Cert.
1864. 3rd Year Student, Hon. Cert.

* Late Medical Registrar at St. Thomas's Hospital.

HICKS (J. W.)† Highgate New Town, N.
1852. 1st Year Student, Treasurer's 1st Prize.
1860. 2nd Year Student, 1st College Prize; Physical Society's Prize.
1861. 3rd Year Student, 1st College Prize; Physical Society's Prize; Cheselden Medal; Treasurer's Gold Medal.

HIGGINS (A. H.), Bermondsey.
1857. Midwifery, Hon. Cert

HEIGHTON (T.), Leicester.
w 1873. 3rd Year Student, Hon. Cert.

HILDITCH (J.), Sandbach, Cheshire.
1857. 1st Year Student, Hon. Cert.
1858. Physical Society's Essay, Prize.
1859. Essay on Neuralgia, Mr. N. Smith's Prize.

HODGES (H. B.)
1855. Midwifery, Hon. Cert.

HODGES (R.), London.
1843. Physiology and Anatomy, Hon. Cert.; Medicine, Hon. Cert.; Clinical Medicine, Hon. Cert.; Surgical Essay, Silver Medal.

HO KAI, Hong Kong, China.
w 1875–6. 1st Year Student, Hon. Cert.
s 1876. Hon. Cert.
w 1876–7. 2nd Year Student, Hon. Cert.

HOLBERTON (H. N.), Hampton.
w 1876–7. 2nd Entrance Science Scholarship, and 2nd College Prize.
w 1877–8. 2nd Year Student, 1st Coll. Prize.

HOPTON (A. W.), Stockwell.
1851. Descriptive Anatomy, Hon. Cert.

HOOPER (J. H.), Upton Warren.
1858. 1st Year Student, Hon. Cert.
1859. 2nd Year Student, College Prize.
1860. 3rd Year Student, Hon. Cert.

HOWELL (T.), London.
1850. Practical Midwifery, Prize.

HUBBARD (J. W.), Leicester.
1847. Clinical Medical Reports, Prize; Medicine, Prize; Physiology and Anatomy, Hon. Cert.; Physical Society's Essay, Treasurer's Prize.

HULL (W. W.), Acton.
w 1878–9. 2nd Entrance Science Scholarship, £40.

HUNT (J. A.), Derby.
w 1873. 1st Year Student, Hon. Cert.
w 1874. Prosector's Prize.

HUNTER (W. F.), Margate.
1859. 1st Year Student, Hon. Cert.; Matriculation Examination in Classics & Mathematics, Prize; Matriculation Examination in Modern Languages, Prize.
1860. 2nd Year Student, 3rd Coll. Prize.
1861. 3rd Year Student, Hon. Cert.

HURMAN (H. B.), Bridgewater.
1853. Midwifery, Hon. Cert.

† Late Lecturer on Botany at St. Thomas's Hospital; late Curator of the Museum.

Iles (D.), Fairford.
1863. 2nd Year Student, Hon. Cert.
1864. 3rd Year Student, Hon. Cert.

Inglis (W. W.),* Brixton Hill.
1864. 1st Year Student, 2nd Coll. Prize.
1865. 2nd Year Student, 2nd Coll. Prize
1866. 3rd Year Student, 3rd Coll. Prize; Cheselden Medal.

Ives (R.)
1855. Midwifery, Hon. Cert.

Jackson (T. C.), Rotherhithe.
1844. Materia Medica, Hon. Cert.

Jacob (E. H.), Winchester.
w 1875-6. Physical Society's 3rd Year's Prize.

Jacobson (T. E.), Sleaford, Lincoln.
1852. Practical Midwifery, Prize.

Jardine (J. L.), Brixton.
1848. Physiology and Anatomy, Hon. Cert.
1850. Medical Reports, Dr. Roots' Prize.

Jay (M.), Wallaroo, South Australia.
w 1877-8. 1st Year Student, 3rd Coll. Prize.
w 1878-9. 2nd Year Student, 2nd College Prize;
Prosector's Prize.

Jefferson (T. J.), Hull.
1861. 2nd Year Student, Hon. Cert.
1862. 3rd Year Student, Hon. Cert.

Johnson (W. G.), Wandsworth.
1853. Chemistry, Hon. Cert.
1854. Midwifery, Hon. Cert.
1855. Comparative Anatomy Prize; Midwifery, Hon. Cert.

Jones (S.),†Cricklewood, Middlesex.
1851. Matriculation Scholarship, Prize; Descriptive Anatomy, Hon. Cert.; Chemistry, Hon. Cert.; 1st Year Student, Scholarship.
1852. 2nd Year Student, Scholarship; Physiology, Hon. Cert.; Descriptive Anatomy, Prize; Botany, Hon. Cert.
1853. Physiology, Hon. Cert.; Descriptive Anatomy, Hon. Cert.; 3rd Year Student, Scholarship; Materia Medica, Hon. Cert.

Jones (T.)
1855. Midwifery, Hon. Cert.

Jones (T. M.), Swansea.
Surgery, Hon. Cert.;
Midwifery, Hon. Cert.

Jones (A. O.), Islington.
1862. 1st Year Student, Hon. Cert.

Jones (J.), Ilfracombe.
1863. Matriculation Examination — Modern Languages and Modern History, College Prize.

Jones (W. Wansbrough),‡ Leek.
w 1877-8. 1st Year Student;
1st Entrance Science Scholarship; £60.
The William Tite Scholarship.
w 1877-8. 1st Year Physical Society's Prize;
s 1878. 1st Year Student, 1st Coll. Prize;
w 1878-9. 2nd Year Student, The College Scholarship;
s 1879. 2nd Year Student, 2nd Coll. Prize;
w 1879-80. 3rd Year Student, 2nd tenure of Scholarship, and 1st Coll. Prize.

Joseph (S. W. J.), St. Leonards.
1873. Physical Society's 2nd Year Prize.

Keele (J. T.), South Lambeth.
1853. Materia Medica, Hon. Cert.; Midwifery, Hon. Cert.

Kerakoose (J.), East Indies.
1854. Midwifery, Hon. Cert.

Keyworth (J. W.),§ Aston, Berks.
1848. Chemistry, Hon. Cert.; Materia Medica, Prize; General Proficiency, Hon. Cert.
1849. Physiology, Hon. Cert.; Midwifery, 3rd Prize; Medicine, Hon. Cert.; Physical Society's Essay, Prize.
1850. Physiology, Hon. Cert.; (Accoucheur)Midwifery,Hon. Cert.; Ophthalmic Reports, a Governor's Prize;
Essay on Neuralgia, Mr. Newman Smith's Prize.
1851. Comparative Anatomy, Prize; Clinical Medicine, Prize; Surgical Reports, Prize; Midwifery, Prize; Medical Reports, Prize; Pathology, Prize; Physical Society's Essay, Prize.

Knaggs (R. H. E.), Trinidad, W. Indies.
w 1875-6. Prosector's Prize.

Lake (W. W.), Ilford, Essex.
1873. Physical Society's 1st Year's Prize.

Lankester (H.), Poole, Dorset.
1850. 1st Year Student, Scholarship; Descriptive Anatomy, 1st Prize; Chemistry, Prize.
1851. Physiology, Prize; Materia Medica, Prize; Descriptive Anatomy, Hon Cert.; Botany, Hon. Cert.; Medicine, Prize; Physical Society's Essay, Prize; Surgery, Hon. Cert.
1852. 3rd Year Student, Scholarship; Physiology, Hon. Cert.; Descriptive Anatomy, Hon. Cert.; Medical Cases, President's Prize; Medicine, Prize; Surgery, Prize; Surgery and Surgical Anatomy, Cheselden Medal; General Proficiency, Treasurer's Medal.
1853. Surgical Essay, President's Prize.

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* Late Medical Registrar at St. Thomas's Hospital.

† Surgeon to, and Joint Lecturer on Surgery at, St. Thomas's Hospital; late Lecturer on Anatomy and Ophthalmic Surgery.

‡ Ratcliffe Travelling Fellowship, Oxford, 1880

§ Lecturer on Physiology at Sydenham College, Birmingham.

Laver (H.)
1855. Midwifery, Hon. Cert.

Laver (A. H.), Rayleigh.
1870. 1st Year Student, 3rd Coll. Prize.
1871. 2nd Year Student, 2nd Coll. Prize.
w 1872. 3rd Year Student, 2nd Coll. Prize, Cheselden Medal.

Laxton (T. L.), Stamford.
w 1876-7. 2nd Year Student, Prosector's Prize.

Ledger (M.), London.
1845. Dresser's Clinical Surgery, Prize.

Lees (J.),* Wolverhampton.
1859. 1st Year Student, Hon. Cert.; 3rd Year Student, Hon. Cert.; Physical Society's Prize.

Leeson (T.), Snaith, York.
1847. Medicine, Hon. Cert.; Surgery, Prize; Physiology and Anatomy, Hon. Cert.; Descriptive and Surgical Anatomy, Hon. Cert.; Midwifery, Hon. Cert.
1848. Descriptive and Surgical Anatomy, Hon. Cert.; Physiology and Anatomy, Hon. Cert.; Medicine, Hon. Cert.; Midwifery, Prize.

Le Gros (J.), Jersey.
1844. Medicine, Hon. Cert.; Midwifery, 1st Prize.
1845. Clinical Medical Reports, Medal; Medicine, Hon. Cert.; Dresser's Clinical Surgery, Prize.

Lerew (F. W.), Maida Vale.
s 1876. 1st Year Student, Hon. Cert.

Littlejohn (S. G.), Falmouth, Jamaica.
1865. 1st Year Student, Hon. Cert.

Locock (H. S.), Blackheath.
1848. Descriptive and Surgical Anatomy, Hon. Cert.; Physiology and Anatomy, Hon. Cert.; Midwifery, Hon. Cert.
1849. Physiology, Hon. Cert.

Longstaff (G. B.), Wandsworth.
w 1873-4. 1st Year Student, 2nd Coll. Prize.
s 1874. 1st Coll. Prize; Physical Society's 1st Year's Prize;
s 1875. 2nd Year Student, 2nd Coll. Prize.
w 1875-6. 3rd Year Student, 1st Coll. Prize.
w 1876-7. 4th Year Student, Mead Medal.

Lush (W. H.), Devizes.
w 1872. 2nd Year Student, Prosector's Prize.

Lush (J. S.), West Lavington.
s 1873. 1st Year Student, 3rd Coll. Prize.

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* Late Demonstrator of Morbid Anatomy at St. Thomas's Hospital.

Macmurdo (H. H.), New Broad Street.
1847. Chemistry, Hon. Cert.
1849. Midwifery, Hon. Cert.

Manby (W. G.), Barking, Essex.
1851. Descriptive Anatomy, Hon. Cert.

March (H. C.), Newbury.
1868. 1st Year Student, Treasurer's 2nd Prize.
1856. 2nd Year Student, Hon. Cert.
1860. 3rd Year Student, Hon. Cert.

Mason (M. T.), Newington.
1845. Practical Midwifery, Hon. Cert.

Maybury (A. C.), Frimley, Surrey.
1865. 3rd Year Student, Hon. Cert.

Maybury (W. A.), Frimley, Surrey.
1867. 1st Year Student, 3rd College Prize.

Maybury (H. M.), Frimley, Surrey.
1869. 1st Year Student, 2nd Coll. Prize;
1871. 3rd Year Student, 3rd Coll. Prize.

Maybury (A. V.), Frimley.
1870. 1st Year Student, 2nd Coll. Prize.
1871. 2nd Year Student, 1st Coll. Prize.
w 1872. 3rd Year Student, 1st Coll. Prize; Treasurer's Gold Medal.

Maynard (J. C. M.)
1855. Midwifery, Hon. Cert.

Meadows (H.), Leicester.
1867. 1st Year Student, The William Tite Scholarship; Phys. Soc. 1st Year's Prize.
1868. 2nd Year, Tite Scholarship; Phys. Soc. 2nd Year's Prize.

Miller (B.), London.
1845. Midwifery, Hon. Cert.; Practical Midwifery, Prize; Clinical Medicine, Prize.

Milne (C. W.), Aberdeen.
1865. 1st Year Student, Hon. Cert.

Mitchell (J.), Leicester.
1866. 1st Year Student, 2nd Coll. Prize; Phys. Society's 1st Year's Prize.
1867. 2nd Year Student, 2nd Coll. Prize.
1868. 3rd Year Student, 2nd Coll. Prize.

Money (F. J.), Offham, Kent.
1849. Descriptive Anatomy, 2nd Prize; Chemistry, Prize; Materia Medica, 1st Prize; Matriculation Scholarship, Prize; 1st Year Student Scholarship.
1850. Physiology, Prize; Comparative Anatomy, Prize; Descriptive Anatomy, Prize; Medicine, Prize; Surgery, Hon. Cert.
1851. Descriptive Anatomy, Hon. Cert.; Midwifery, Prize; Medicine, Prize; Physical Society's Essay, Prize; Surgery, Prize; Surgery and Surgical Anatomy, Cheselden Medal; General Proficiency, Treasurer's Gold Medal.

Moreton (J. E.), Marton, Cheshire.
1850. 1st Year Student, Scholarship; Descriptive Anatomy, Hon. Cert.; Chemistry, Hon. Cert.
1851. Materia Medica, Hon. Cert.; Botany, Hon. Cert.;
1852. Physiology, Prize; Descriptive Anatomy, Prize; Physical Society's Essay, Prize; Medicine, Prize; Surgery, Prize; 2nd Year Student, Scholarship.
1853. 3rd Year Student, Scholarship; Physiology, Prize; Clinical Medicine, Pres. Prize; Clinical Medicine, Treas. Prize. Clinical Medicine, Mr. N. Smith's Prize; Descriptive Anatomy, Hon. Cert.; Midwifery, Hon. Cert.; Ophthalmic Surgery, Prize; Medicine, Prize; Forensic Medicine, Hon. Cert.; Surgery, Hon. Cert.; Surgery and Surgical Anatomy Cheselden Medal; Gen. Proficiency, Treas. Medal.
1854. Clinical Med., Dr. Roots' Prize; Pathology, Hon. Cert.

Moreton (T.), Marton, Cheshire.
1867. 1st Year Student, Treasurer's 2nd Prize; Matriculation Examination, Classics and Mathematics, Prize.
1858. Clinical Medicine, Prize.
1859. 3rd Year Student, Hon. Cert.; Clinical Medicine, Hon. Cert.

Morgan (S.), London.
1852. Descriptive Anatomy, Hon. Cert.
1853. Midwifery, Hon. Cert.
1854. Midwifery, Hon. Cert.; Forensic Medicine, 2nd Prize.

Morris (C. K.), Spalding, Lincolnshire.
w 1875. Prosector's Prize.

Morton (J.), Holbeach, Lincoln.
1861. 1st Year Student, Hon. Cert.
1862. 2nd Year Student, Hon. Cert.
1863. 3rd Year Student, Hon. Cert.

Moxon (H. M.), Brigsham.
1871. Prosector's Prize.

Musson (W. E.), Birkholme, Lincoln.
1850. Matriculation Scholarship, Prize; Descriptive Anatomy, Hon. Cert.
1851. Physiology, Hon. Cert.; Comparative Anatomy, Hon. Cert.; Medicine, Hon. Cert.

Newby (C. H.), London.
1870. Prosector's Prize.

Newsholme (A.), Bradford.
w 1875-6. 1st Year Student, 1st Coll. Prize.
w 1876-7. 2nd Year Student, 1st College Scholarship.
s 1877. Ditto 1st Coll. Prize.
w 1877-8. 3rd Year Student, The "College Scholarship," 1st Coll. Prize.

Newth (A. H.), Kennington, Surrey.
1865. 1st Year Student, Hon. Cert.

Nichol (R.), Camberwell.
1844. Chemistry, 1st Prize; Materia Medica, Prize.
1845. Physiology and Anatomy, Hon. Cert.; Botany, Prize; Comparative Anatomy, Prize.

Nicholson (F. W.), Putney.
s 1877. 1st Year Student, 3rd Coll. Prize.
w 1877-8. 2nd Year Student, Prosector's Prize.

Nicholson (J. F.), Brigg, Lincoln.
w 1873. 1st Year Student, 1st Coll. Prize.
s 1873. Ditto 1st Coll. Prize.
w 1874. 2nd Year Student, 1st Coll. Prize.
s 1874. Ditto 1st Coll. Prize.
w 1875. 3rd Year Student, 1st Coll. Prize; Cheselden Medal; Mead Medal; Treasurer's Gold Medal.

O'Callaghan (C.), Killarney.
1847. Chemistry, Hon. Cert.; Materia Medica, Prize.
1848. Medical Reports, President's Prize; Physiology and Anatomy, Hon. Cert.; Midwifery, Hon. Cert.; Practical Midwifery, Prize; Forensic Medicine, Prize; Physical Society's Essay, Prize.
1849. Physical Society's Essay, Treasurer's Prize; Resident Accoucheur's Report, Prize.

Orange (W.),* Torquay.
1854. Midwifery, Hon. Cert.
1856. Midwifery, Hon. Cert.

Ord (G. R.), Brixton.
1858. Midwifery, Hon. Cert.

Ord (W. M.),† Brixton.
1853. Matriculation Examination, Scholarship; 1st Year Student, Scholarship; Descriptive Anatomy, Prize; Chemistry, Prize.
1854. 2nd Year Student, Scholarship; Medicine, Prize; Materia Medica, Prize; Descriptive Anatomy, Hon. Cert.; Midwifery, Hon. Cert.; Surgery, Hon. Cert.; Physiology, Prize.
1855. 3rd Year Student, Scholarship; Surgery and Surgical Anatomy, Cheselden Medal; Forensic Medicine, Prize; Pathology, Prize; Practical Chemistry, Prize; Medicine, Hon. Cert.; Descriptive Anatomy, Hon. Cert.; Physiology, Prize; General Proficiency, Treasurer's Medal.
1856. Registrar, Prize.

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* Resident Medical Superintendent at Broadmoor Asylum.

† Physician to, and Joint Lecturer on Medicine, late a Lecturer on Physiology and Practical Physiology at St. Thomas's Hospital. Late Lecturer on Comparative Anatomy.

Osborn (S.), Brixton.
1870. Physical Society's 2nd Year's Prize.

Oughton (T.), London.
1858. Clinical Medical Assistant, 1st Prize.

Ozanne (C. H.), Guernsey.
1844. Descriptive & Surgical Anatomy, Prize.

Ozanne (J.), Guernsey.
1843. Physiology and Anatomy, Cheselden Medal;
Comparative Anatomy, Hon. Cert.
1844. Medicine, Prize;
Midwifery, 2nd Prize;
Surgery, Hon. Cert.;
Physical Society's Essay, Prize;
Clinical Surgical Reports, Silver Medal.

Page (W. H.), Cheltenham.
s 1872. 1st Year Student, Hon. Cert.
w 1873. 3rd Coll. Prize.

Palmer (M. H. C.), Newbury, Berks.
1870. Physical Socy's. 2nd Year's Prize.
1872. Physical Socy's. 3rd Year's Prize.

Pearce (G.), Salisbury.
1860. 1st Year Student, 2nd Coll. Prize.
1861. 2nd Year Student, 2nd Coll. Prize.

Peek (F. H.), Diss, Norfolk.
s 1872. 1st Year Student, 1st Coll. Prize.
w 1873. The William Tite Scholarship.
w 1874. 2nd Year Wm. Tite Scholarship.

Penberthy (J.), Redruth.
1854. 1st Year Student, Scholarship;
Descriptive Anatomy, Prize;
Chemistry, Hon. Cert.
1855. 2nd Year Student, Scholarship;
Midwifery, Hon. Cert.;
Botany, Prize;
Descriptive Anatomy, Hon. Cert.

Pern (A.), Winchester, Hampshire.
1865. 1st Year Student, Hon. Cert.

Phillips (G. G.), Newcastle Emlyn.
1859. 2nd Year Student, Hon. Cert.
1860. 3rd Year Student, 3rd Coll. Prize.

Pickford (J. K.), Brixton.
w 1872. 1st Year Student, 3rd Coll. Prize.
s 1872. Hon. Cert.

Pike (W. R.), Leicester.
1868. Physical Society's 1st Year's Prize.

Pike (J. B.), Leicester.
w 1872. 2nd Year Student, Hon. Cert.
w 1873. 3rd Year Student, Hon. Cert.

Plowman (R.), Bridgewater, Somst.
1862. 1st Year Student, Hon. Cert.
1863. 2nd Year Student, Hon. Cert.
1865. 3rd Year Student, Hon. Cert.

Pollard (F.), Taunton, Somerset.
1865. 1st Year Student, 2nd Coll. Prize.
1866. 2nd Year Student, 2nd Coll. Prize;
Physical Society's 2nd Year's Prize.
1868. 3rd Year Student, 1st Coll. Prize;
Physical Society's 3rd Year's Prize;
Cheselden Medal.

Potter (H. P.), Denmark Hill.
w 1872. 1st Year Student, Hon. Cert.
s 1872. 3rd College Prize.
w 1873. 2nd Year Student, 2nd Coll. Prize;
Prosector's Prize.
w 1874. 3rd Year Student, 1st Coll. Prize;
Cheselden Medal;
Hon. Cert. for Gen. Proficiency.
1875. Grainger Testimonial Prize.

Poynder (G. F.), Clapham.
1872. Phys. Society's 1st Year's Prize.
1874. Phys. Society's 3rd Year's Prize.

Purkiss (A.), Kennington.
w 1875-6. 1st Year Student, Hon. Cert.
s 1876. Hon. Cert.

Purvis (J. P.), Blackheath.
1861. 1st Year's Student, Hon. Cert.;
Matriculation Examination, Hon. Cert.
1862. 2nd Year Student, Hon. Cert.
1863. 3rd Year Student, Hon. Cert.

Rainbow (F.), Lower Norwood.
1864. 1st Year Student, Hon. Cert.
1865. 2nd Year Student, 3rd Coll. Prize.
1866. 3rd Year Student, 2nd Coll. Prize.

Relton (B.), Ealing.
1880. 2nd Entrance Science Scholarship.

Rayner (H.),* Hythe, Kent.
1862. Matriculation Examination—Physics and Natural History, Hon. Cert.;
1st Year Student, 1st Coll. Prize.
1863. 2nd Year Student, 1st Coll. Prize.
1864. 3rd Year Student, Hon. Cert.;
Hon. Cert. for the Cheselden Medal.

Richardson (C. S.), Greenwich.
1851. Surgery, Hon. Cert.
1852. Midwifery, Prize.

Richardson (L.), Greenwich.
1848. General Pathology, Prize.

Ridge (J J.), Horsleydown.
1864. 1st Year Student, The William Tite Scholarship.
1865. 2nd Year of Tite's Scholarship;
Physical Society's 2nd Year's Prize
Prosector's Prize.
1866. The Grainger Testimonial Prize.
1868. 3rd Year Tite Scholarship;
Hon. Cert. for Proficiency in Surgery and Surgical Anatomy;
Treasurer's Gold Medal.

Rogers (R. S.), Greenwich.
1843. Midwifery, First Prize;
Clinical Medicine, Hon. Cert.

Rossiter (G. F.), Taunton.
1871. 1st Year Student, 1st Coll. Prize.
w 1872. 2nd Year Student, 2nd Coll. Prize.
s 1872. 1st Coll. Prize.
w 1873. 3rd Year Student, 3rd Coll. Prize;
Cheselden Medal;
Treasurer's Gold Medal.

Rudall (J. T.), Crediton, Devon.
1853. Physiology, Hon. Cert.;
Midwifery, Hon. Cert.;
Medicine, Hon. Cert.;
Surgery, Hon. Cert.

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* Medical Superintendent Hanwell Asylum, and Lecturer on Psychology at St. Thomas's Hospital. Late Lecturer on Psychology at Middlesex Hospital.

Sandford (H. C.), Brixton.
w 1872. 1st Year Student, 1st Coll. Prize.
s 1872. 2nd College Prize.
w 1873. 2nd Year Student, 1st Coll. Prize.
s 1873. 3rd College Prize.
w 1874. 3rd Year Student, 2nd Coll. Prize; Treasurer's Gold Medal.

Sankey (G. G.), Ashford, Kent.
1864. 3rd Year Student, 3rd Coll. Prize.

Saunders (G. M. C.), London.
1843. Midwifery, Hon. Cert.

Saunders (H. W.), London.
1867. 1st Year Student, 2nd Coll. Prize.
1868. Prosector's Prize.
1869. 3rd Year Student, 1st. Coll. Prize; Treasurer's Gold Medal; Physical Society's 3rd Year's Prize.

Saunders (W. S.), Camden Town.
1844. Midwifery, Hon. Cert.
1845. Medicine, Prize; Midwifery, Prize; Clinical Medicine, Prize.

Savill (T. D.), Brixton.
w 1875-6. 2nd Entrance Science Scholarship; 1st Year Student, The William Tite Scholarship.
s 1876. 3rd College Prize.
w 1876-7. 2nd Year Student, Hon. Cert.
s 1877. 2nd Year Student, 2nd Coll. Prize.

Scott (R. J.), Omagh, Tyrone.
1861. 1st Year Student, Hon. Cert.

Sewell (E.), Little Oakley.
1848. Physiology and Anatomy, Hon. Cert.

Sedgwick (J.), Boroughbridge.
1854. Descriptive Anatomy, Hon. Cert.
1865. Surgery, Hon. Cert.; Midwifery, Hon. Cert.

Sedgwick (L. W.), Boroughbridge.
1848. Descriptive and Surgical Anatomy, Prize; Physiology and Anatomy, Prize; Medicine, Hon. Cert.; Midwifery Prize; Surgery, Prize;
1849. Physiology, 1st Prize; Midwifery, 1st Prize; Surgery, Prize; Medicine, 1st Prize; General Proficiency, Treasurer's Medal.

Sergeant (E.), Preston.
1870. 3rd Year Student, 3rd Coll. Prize; Cheselden Medal.

Sharkey (S. J.), Galway.
1874. Physical Society's 2nd Year's Prize.

Shaw (J.), Clapham Road.
w 1874-5. 1st Year Student, 1st Coll. Prize.
s 1875. 1st Coll. Prize.
w 1875-6. 2nd Year Student, 1st Coll. Prize.

Shea (H. G.), London.
1860. 1st Year Student, Hon. Cert.
1861. 2nd Year Student, Hon. Cert.
1862. 3rd Year Student, 2nd Coll. Prize.

Shea (J.), London.
1855. Midwifery, Hon. Cert.
1859. Midwifery, Hon. Cert.

Sheppard (C. E.), Kensington.
w 1873-4. 1st Year Student, 1st Coll. Prize.
s 1874. 1st Year Student, 2nd Coll. Prize.
w 1874-5. 2nd Year Student, 1st Coll. Prize.
s 1875. 1st Coll. Prize.
w 1875-6. 3rd Year Student, 2nd Coll. Prize; Physical Socty's. 2nd Year's Prize.
w 1876-7. 4th Year Student, the Treasurer's Gold Medal.
w 1877-8. Solly Medal and Prize, £20. Paper published in Hosp. Reports, Vol. VIII.

Siddall (J. B.),* Morton, Derby.
1862. 1st Year Student, Hon. Cert.
1863. 2nd Year Student, Hon. Cert.
1864. 3rd Year Student, Hon. Cert.; Hon. Cert. for the Cheselden Medal.

Simon (M. F.), Blackheath.
1866. 1st Year Student, 1st Coll. Prize.
1869. 3rd Year Student, 3rd Coll. Prize; Prosector's Prize; Prize and Hon. Cert. for Surgery and Surgical Anatomy.

Simmons (H. B. M.), West Indies.
1849. Descriptive Anatomy, Hon. Cert.

Sissons (W. H.), Hull.
1858. Matriculation Examination—Physics, &c., Prize.
1859. 2nd Year Student, Hon. Cert.; Clinical Medicine, Prize; Physical Society's Essay, Prize.
1860. 3rd Year Student, 2nd Coll Prize; Physical Society's Prize.

Slater (J. S.), Bath.
1868. 1st Year Student, 1st Coll. Prize.
1869. Physical Society's 2nd Year's Prize.
1870. 3rd Year Student, 2nd Coll. Prize; Treasurer's Gold Medal.

Slaughter (C. H.), Farningham.
1855. Midwifery, Hon. Cert.

Slaughter (G. M.), Farningham.
1854. Midwifery, Hon. Cert.

Skinner (W.), Stockton-on-Tees.
1848. Botany, Hon. Cert.; Materia Medica, Hon. Cert.

Skipper (J.), Dalston, London.
1852. Midwifery, Hon. Cert.

Skipton (S. S.), East Indies.
1851. Midwifery, Hon. Cert.

Smith (H. U.), Reading.
w 1876-7. 4th Year Student, Cheselden Medal.

Smith (R. P.), Belvedere.
s 1876. 2nd Year Student, 2nd College Prize.

Snaith (F.), Boston, Lincolnshire.
1864. 3rd Year Student, Hon. Cert.

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* Late Physician to H.B.M. Legation, Japan.

SPRAKELING (R. J.), Canterbury.
1855. Midwifery, Hon. Cert.
1856. 2nd Year Student, Hon. Cert.; Clinical Medicine, Prize.

STADDON (J. H.), London.
1858. Clinical Medicine, Prize.
1859. Clinical Medicine, Prize.

STEPHENS (J. N.), Walton-on-Thames.
w 1876-7. Physical Society's 1st Year's Prize.

STEPHENS (S. Sanders), Taunton.
1863. Physical Society's 2nd Year's Prize.

STODDART (F. W.), Bristol.
w 1877-8. 1st Year Student, 1st Coll. Prize.

STONE (W. H.),* London.
1854. Matriculation Examination—Scholarship; 1st Year Student, Scholarship; Descriptive Anatomy, Hon. Cert.; Botany, Prize; Chemistry, Prize.
1855. 2nd Year Student, Scholarship; Forensic Medicine, Prize; Physical Society's Essay, Prize; Practical Chemistry, Prize; Medicine, Prize; Descriptive Anatomy, Hon. Cert.; Materia Medica, Prize; Physiology, Prize; Clinical Medicine, Mr. N. Smith's Prize.
1856. Clinical Medical Prize; General Proficiency, Treasurer's Medal.

SUMMERHAYES (H.), Crewkerne, Somersetshire.
1861. Matriculation Examination—Classics and Mathematics, President's Prize; Modern Languages, &c., College Prize; Physics and Natural History, College Prize; The William Tite Scholarship.
1862. 2nd Year Tite's Scholarship.
1863. 3rd Year Tite's Scholarship; Treasurer's Gold Medal.

SUMMERHAYES (W.), Crewkerne, Somersetshire.
1856. Matriculation Examination—Classics and Mathematics, Hon. Cert.; Matriculation Examination—Modern Languages, Prize.

SUTCLIFF (E.), Camberwell.
1861. 1st Year, 3rd College Prize; Matriculation Examination—Hon. Cert.
1863. 3rd Year Student, 3rd Coll. Prize.

SUTCLIFFE (J.), Ashton-under-Lyne.
1869. Prosector's Prize.

* Physician to, and Lecturer on Physics and Natural Philosophy, and on Materia Medica at St. Thomas's Hospital; late Assistant-Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

SWALLOW (J. D.), Reading.
1861. 2nd Year Student, Hon. Cert.

SWEETING (R. B.), Reading.
1853. 1st Year Student, Scholarship; Descriptive Anatomy, Hon. Cert.; Chemistry, Hon. Cert.
1854. 2nd Year Student, Scholarship; Midwifery, Prize.
1855. 3rd Year Student, Scholarship; Midwifery, Hon. Cert.; Clinical Medicine, Treasurer's Prize.

SWEETING (T.), Reading.
1855. Midwifery, Hon. Cert.

TAKAKI (Kanehiro), Kasumigaseki, Tokei, Japan.
w 1875-6. 1st Year Student, 3rd Coll. Prize.
s 1876. 2nd College Prize.
w 1876-7. 2nd Yr. Student, 1st Coll. Prize.
s 1877. 2nd Year Student, 3rd Coll. Prize.
w 1877-8. 3rd Year Student, 2nd Coll. Prize.
w 1878-9. 4th Year Student; "The Cheselden Medal;" The Treasurer's Gold Medal.

TALBOT (G. T.), Kidderminster.
1848. Medical Reports, Dr. Roots' Prize.

TAYLOR (C. M.), Wrawby, Brigg.
1871. 1st Year Student, 2nd Coll. Prize.
w 1872. 2nd Year Student, 1st Coll. Prize.
w 1873. 3rd Year Student, 1st Coll. Prize; Surgery and Surgical Anatomy, Hon. Cert.

TAYLOR (S.), Burton-on-Trent.
w 1872. 3rd Year Student, Hon. Cert.

TAYLOR (S. J.), Grantham.
s 1875. 1st Year Student, Hon. Cert.
w 1875-6. 2nd Year Student, The Musgrove Scholarship.
w 1876-7. 3rd Year Student, 2nd Year Musgrove Scholarship, and 1st College Prize.
w 1877-8. The Mead Medal; The Treasurer's Gold Medal.

TEANBY (F. W.), Turnham Green.
1851. Practical Midwifery, Prize.
1852. Clinical Medicine, Junior Prize; Midwifery, Hon. Cert.

THOMAS (L. M.), Camberwell.
1866. 1st Year Student, 3rd Coll. Prize.
1867. 2nd Year Student, 3rd Coll. Prize.
1869. 3rd Year Student, 2nd Coll. Prize; Cheselden Medal.

THOMAS (W. L.), Neath, Glamorgan.
1845. Chemistry, Prize; Materia Medica, Prize.
1847. Medicine, Hon. Cert.; Physiology and Anatomy, Prize; Physical Society's Essay, Prize.

THOMPSON (F. H.), Tenbury.
1870. Prosector's Prize.

THOMSON (K.), Luton, Beds.
1848. Medicine, Prize; Clinical Medicine, Hon. Cert.

THUDICHUM (G. D.), Kensington.
w 1878-9. Physical Society's 2nd Year's Prize.

Timothy (P. V.), London.
1851. Practical Midwifery, Prize; Midwifery, Hon. Cert.

Todd (A. J. M.), Gravesend.
w 1863. 1st Year Student, 2nd Coll. Prize.
w 1874. Prosector's Prize.

Tomson (W. B.), Luton.
w 1879–80. 1st Year Student, 2nd Coll. Prize.

Trend (H. G.), Bridgewater.
1853. Practical Midwifery, Prize; Midwifery, Hon. Cert.
1854. Midwifery, Hon. Cert.; Clinical Medicine, Treasurer's Prize.

Treves (W. K.), Dorchester.
1863. Matriculation Examination—Physics and Natural History, Hon. Cert.; and Modern Languages and Modern History, College Prize and Hon. Cert.; 1st Year Student, Hon. Cert.
1865. 3rd Year Student, 2nd Coll. Prize; Prosector's Prize.

Tyrrel (W.), Richmond.
1851. Descriptive Anatomy, Hon. Cert.
1852. Medicine, Hon. Cert.; Surgery, Hon. Cert.
1853. Forensic Medicine, Hon. Cert.; Ophthalmic Essay, Mr. Dixon's Prize.
1854. Surgical Reports, President's Prize.

Vardy (J. L.), London.
1854. Midwifery, Hon. Cert.
1855. Practical Midwifery, Prize.

Verdon (H. W.), Eccles.
3rd Year Student, Hon. Cert.

Wagstaffe (W. W.),* Kennington.
1862. Matriculation Examination—Classics and Mathematics, President's Prize. Physics and Natural History, College Prize; Modern Languages, &c., College Prize; 1st Year Student, Treasurer's Prize;
1863. 2nd Year Student, 1st. Coll. Prize.
1864. 3rd Year Student, 1st Coll. Prize; Physical Society's 3rd Year's Prize; Cheselden Medal; Treasurer's Gold Medal.

Waller (A.), Islington.
1864. 1st Year Student, 1st Coll. Prize.
1865. 2nd Year Student, 1st Coll. Prize.
1866. 3rd Year Student, 1st Coll. Prize; Physical Society's 3rd Year's Prize; Treasurer's Gold Medal.

Waller (C. B.), London.
1860. 2nd Year Student, Hon. Cert.

Walker (R.), Kendal.
1854. Descriptive Anatomy, Hon. Cert.; Midwifery, Hon. Cert.
1855. Midwifery, Hon. Cert.

* Assistant Surgeon to, and Joint Lecturer on Anatomy at, St. Thomas's Hospital. Late Assistant Demonstrator of Anatomy and Surgical Registrar.

Ward (F. H.),† Scarboro'.
1863. 1st Year Student, Treas. Prize.
1864. 2nd Year Student, 1st Coll. Prize; Physical Soc. 2nd Year's Prize.
1865. 3rd Year Student, 1st Coll. Prize; Physical Soc. 3rd Year's Prize; Cheselden Medal; Treasurer's Gold Medal.

Watson (F.), Nottingham.
1859. 1st Year Student, Hon. Cert.; Matriculation Examination—Physics, &c., Prize.

Way (F. W.), Fratton, Portsmouth.
1853. Descriptive Anatomy, Hon. Cert.; Chemistry, Hon. Cert.;
1854. Midwifery, Hon. Cert.; Surgery, Hon. Cert.

Way (J. P.), Portsmouth.
1861. 1st Year, Hon. Cert.

Webber (W. W.), Crewkerne.
w 1876-7. 1st Year Student, 3rd Coll. Prize.

Webster (H.), Dulwich.
1851. Matriculation Sch., Hon. Cert.; Descriptive Anatomy, Hon. Cert.
1852. Botany, Hon. Cert.
1853. Midwifery, Hon. Cert.

Weekes (F. H.), Southampton.
w 1873–4. 1st Year Student, 3rd Coll. Prize.
s 1874. 3rd Coll. Prize.
w 1874–5. 2nd Year Student, 2nd Coll. Prize.
s 1875. 3rd Coll. Prize.
w 1875–6. 3rd Year Stdnt., 3rd Coll. Prize.

Wells (A. E.), Brixton.
w 1877–8. 1st Year Student, 2nd Entrance Science Scholarship.

West (J. F.) ‡
1853. Midwifery, Hon. Cert.
1854. Forensic Medicine, Hon. Cert.; Pathology, Hon. Cert.
1855. Ophthalmic Reports, Prize.

Wheaton (F. D. W.), Honiton.
1845. Practical Midwifery, Hon. Cert.

Wiles (J.), Hitchin, Herts.
1850. Physiology, Hon. Cert.
1851. (Accoucheur) Midwifery, Prize.

Whitehead (J.), Preston.
1861. 1st Year, Hon. Cert.
1862. 2nd Year Student, 3rd Coll. Prize.
1863. 3rd Year Student, 2nd Coll. Prize.

Williams (H.), Longley, near Glo'str.
1868. 1st Year Student, 2nd Coll. Prize.
1869. 2nd Year Student, 3rd Coll. Prize.

Williams (J.), Westerleigh, Bristol.
1855. 1st Year Student, Scholarship; Midwifery Prize; Botany, Prize; Chemistry, Hon. Cert.; Descriptive Anatomy, Prize; Materia Medica, Hon. Cert.
1856. 2nd Year Student, Treas. 1st Prize.
1857. 3rd Year Student, Hon. Cert.; General Proficiency, Treasurer's Medal.

† Assistant Medical Officer, Wandsworth Lunatic Asylum.

‡ Surgeon to Queen's Hospital, and Professor of Clinical Surgery at Queen's College, Birmingham.

Williams (J.), Doncaster.
1858. 1st Year Student, Hon. Cert.
1859. 2nd Year Student, Hon. Cert.; Clinical Medicine, Prize.
1860. 3rd Year Student, Hon. Cert.

Williams (P. H.), Monmouth.
s 1872. 1st Year Student, Hon. Cert.

Williams (P. M. G.), Newcastle Emlyn.
1864. Practical Midwifery, Prize.

Williams (R. M.), Beaumaris.
1880. 1st Entrance Science Scholarships.

Williams (W. R.),* Nottingham.
1856. Matriculation Examination — Classics, Mathematics, Hon. Cert.

Williamson (R. J.), Ripon.
w 1876–7. 1st Entrance Sc. Scholarship.

Witherby (W. H.), Croydon.
1858. Matriculation Examination in Modern Languages, Prize.

Woakes (E.), Luton, Beds.
1856. 1st Year Student, Hon. Cert.
1857. 2nd Year Student, 2nd Prize; Clinical Medical Prize.
1858. Essay on Neuralgia, Mr. N. Smith's Prize;
Surgical and Medical Anatomy, Cheselden Medal.

* One of H. M. Commissioners in Lunacy, late Resident Physician to Bethlem Royal Hospital; late Lecturer on Mental Diseases at St. Thomas's Hospital.

Wood (G. J.), London.
1863. Descriptive Anatomy, Hon. Cert.

Wood (R. H.), Loughborough, Leicester.
1854. Descriptive Anatomy, Hon. Cert.
1855. Surgery, Hon. Cert.; Midwifery, Prize; Medicine, Hon. Cert.; Descriptive Anatomy, Prize; Physiology, Hon. Cert.
1856. Physical Society's Essay, Prize.

Woodhouse (T. J.), London.
1855. Chemistry, Hon. Cert.; Materia Medica, Hon. Cert.

Woodman (W. E.), Camberwell.
s 1875. 1st Year Student, 2nd Coll. Prize.

Wotton (H. G.)
1855. Midwifery, Hon. Cert.
1856. Midwifery, Hon. Cert.

Wrench (E. M.), Cornhill.
1851. Descriptive Anatomy, Hon. Cert.; Physical Society's Essay, Treasurer's 1st Year's Prize;
1852. Physiology, Hon. Cert.

Wyman (W. S.), Kettering, Northampton.
1852. Matriculation Examination Scholarship.

All old Students of St. Thomas's Hospital are requested to send their *present* addresses to Dr. Gillespie, *St. Thomas's Hospital, Albert Embankment, Westminster Bridge, S.E.*